GREE
Change for Life

Service Manual

MODEL: GWH09MB-K3DNA2K
GWH12MB-K3DNA2K
GWH09MB-K3DNA3K
GWH12MB-K3DNA3K
GWH09MB-K3DNC9K
GWH12MB-K3DNC9K
GWH09MB-K3DNE1K
GWH12MB-K3DNE1K
(Refrigerant R410A)

GREE ELECTRIC APPLIANCES, INC.OF ZHUHAI

Table of Contents

Summary and Features 1

1. Safety Precautions 2

2. Specifications 3

2.1 Unit Specifications 3

2.2 Operation Characteristic Curve 7

2.3 Capacity Variation Ratio According to Temperature 7

2.4 Noise Criteria Curve Tables for Both Models 8

2.5 Operation Data 8

3. Construction Views 9

3.1 Indoor Unit 9

3.2 Outdoor Unit 9

4. Refrigerant System Diagram 10

5. Schematic Diagram 11

5.1 Electrical Data 11

5.2 Electrical Wiring 11

5.3 Printed Circuit Board 13

6. Function and Control 15

6.1 Remote Control Operations 15

6.2 Description of Each Control Operation 18

7. Installation Manual 24

7.1 Notices for Installation 24

7.2 Installation Drawing 26

7.3 Install Indoor Unit 27

7.4 Install Outdoor Unit 28

7.5 Check after Installation and Operation Test 29

7.6 Installation and Maintenance of Healthy Filter 30

8. Exploded Views and Parts List 31

8.1 Indoor Unit 31

8.2 Outdoor Unit 38

9. Troubleshooting 42

9.1 Malfunction Analysis 42

9.2 Flashing LED of Indoor/Outdoor Unit and Primary Judgement 46

9.3 How to Check Simply the Main Part 53

10. Removal Procedure 66

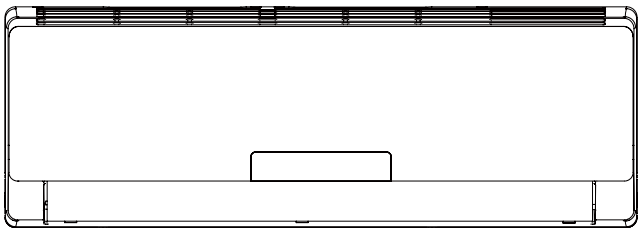
10.1 Removal Procedure of Indoor Unit 66

10.2 Removal Procedure of Outdoor Unit 69

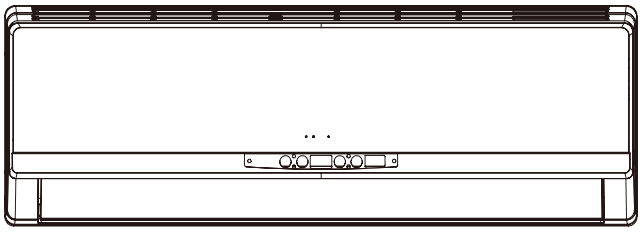
Summary and Features

Indoor Unit

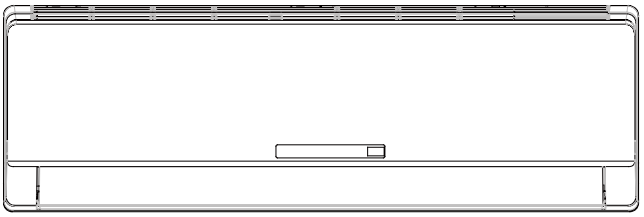
GWH09MB-K3DNA3K/I
GWH12MB-K3DNA3K/I



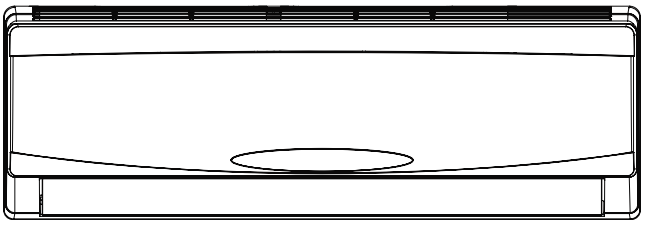
GWH09MB-K3DNA2K/I
GWH12MB-K3DNA2K/I



GWH09MB-K3DNC9K/I
GWH12MB-K3DNC9K/I

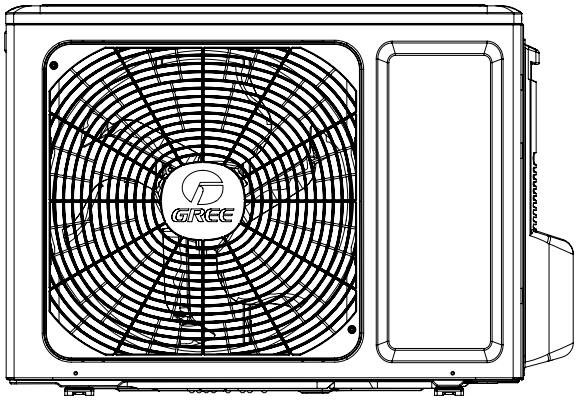


GWH09MB-K3DNE1K/I
GWH12MB-K3DNE1K/I



Outdoor Unit

GWH09MB-K3DNA3K/O
GWH12MB-K3DNA3K/O



Remote Controller

YB1FA

1.Safety Precautions

Installing, starting up, and servicing air conditioner can be hazardous due to system pressure, electrical components, and equipment location, etc.
Only trained, qualified installers and service personnel are allowed to install, start-up, and service this equipment.
Untrained personnel can perform basic maintenance functions such as cleaning coils. All other operations should be performed by trained service personnel.
When handling the equipment, observe precautions in the manual and on tags, stickers, and labels attached to the equipment. Follow all safety codes. Wear safety glasses and work gloves. Keep quenching cloth and fire extinguisher nearby when brazing.
Read the instructions thoroughly and follow all warnings or cautions in literature and attached to the unit. Consult local building codes and current editions of national as well as local electrical codes.
Recognize the following safety information:

Warning Incorrect handling could result in personal injury or death.

Caution Incorrect handling may result in minor injury, or damage to product or property.

Warning

All electric work must be performed by a licensed technician according to local regulations and the instructions given in this manual.

●Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.
●Never supply power to the unit unless all wiring and tubing are completed, reconnected and checked.
●This system adopts highly dangerous electrical voltage. Incorrect connection or inadequate grounding can cause personal injury or death. Stick to the wiring diagram and all the instructions when wiring.
●Have the unit adequately grounded in accordance with local electrical codes.
●Have all wiring connected tightly. Loose connection may lead to overheating and a possible fire hazard.

All installation or repair work shall be performed by your dealer or a specialized subcontractor as there is the risk of fire, electric shock, explosion or injury.

●Make sure the outdoor unit is installed on a stable, level surface with no accumulation of snow, leaves, or trash beside.
●Make sure the ceiling/wall is strong enough to bear the weight of the unit.
●Make sure the noise of the outdoor unit does not disturb neighbors.
●Follow all the installation instructions to minimize the risk of damage from earthquakes, typhoons or strong winds.
●Avoid contact between refrigerant and fire as it generates poisonous gas.
●Apply specified refrigerant only. Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture and other hazards.
●Make sure no refrigerant gas is leaking out when installation is completed.
●Should there be refrigerant leakage, the density of refrigerant in the air shall in no way exceed its limited value, or it may lead to explosion.
●Keep your fingers and clothing away from any moving parts.
●Clear the site after installation. Make sure no foreign objects are left in the unit.
●Always ensure effective grounding for the unit.

Caution

●Never install the unit in a place where a combustible gas might leak, or it may lead to fire or explosion.
●Make a proper provision against noise when the unit is installed at a telecommunication center or hospital.
●Provide an electric leak breaker when it is installed in a watery place.
●Never wash the unit with water.
●Handle unit transportation with care. The unit should not be carried by only one person if it is more than 20kg.
●Never touch the heat exchanger fins with bare hands.
●Never touch the compressor or refrigerant piping without wearing glove.
●Do not have the unit operate without air filter.
●Should any emergency occur, stop the unit and disconnect the power immediately.
●Properly insulate any tubing running inside the room to prevent the water from damaging the wall.

2.Specifications

2.1 Unit Specifications

Model			GWH09MB-K3DNA2K GWH09MB-K3DNA3K	GWH12MB-K3DNA2K GWH12MB-K3DNA3K
Product Code			CB181005700 CB171007600	CB181005800 CB171007700
Power Supply	Rated Voltage	V~	220-240	220-240
	Rated Frequency	Hz	50	50
	Phases		1	1
Power Supply Mode			Indoor	Indoor
Cooling Capacity (Min~Max)		W	2700(600~3200)	3500(600~3900)
Heating Capacity (Min~Max)		W	2800(800~3600)	4000(880~4400)
Cooling Power Input (Min~Max)		W	870(185~1300)	1170(185~1400)
Heating Power Input (Min~Max)		W	900(220~1400)	1200(250~1550)
Cooling Power Current		A	3.8	5.2
Heating Power Current		A	3.92	5.3
Rated Input		W	1400	1600
Rated Current		A	6.69	7.8
Air Flow Volume(SH/H/M/L/SL)		m^3/h	600/500/400/300/-	580/500/400/300/-
Dehumidifying Volume		L/h	0.8	1.2
EER		W/W	3.10	2.99
COP		W/W	3.11	3.33
SEER		W/W	5.6	6.1
SCOP		W/W	3.8	4.0
Application Area		m^2	12-18	16-24
Indoor Unit	Model of Indoor Unit		GWH09MB-K3DNA2K/I GWH09MB-K3DNA3K/I	GWH12MB-K3DNA2K/I GWH12MB-K3DNA3K/I
	Fan Type		Cross-flow	Cross-flow
	Diameter Length(DXL)	mm	Φ92X645	Φ92X645
	Fan Motor Cooling Speed (SH/H/M/L/SL)	r/min	1260/1050/900/690/-	1290/1070/900/690/-
	Fan Motor Heating Speed (SH/H/M/L/SL)	r/min	1320/1200/1000/910/-	1280/1050/980/920/-
	Output of Fan Motor	W	20	20
	Fan Motor RLA	A	0.1	0.1
	Fan Motor Capacitor	μF	1.0	1.0
	Input of Heater	W	-	-
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	mm	Φ7	Φ7
	Row-fin Gap	mm	2-1.4	2-1.4
	Coil Length (LXDXW)	mm	636X25.4X267	636X25.4X267
	Swing Motor Model		MP24AA	MP24AA
	Output of Swing Motor	W	2	2
	Fuse	A	3.15	3.15
	Sound Pressure Level (SH/H/M/L/SL)	dB (A)	41/39/34/28/-	42/40/35/30/-
	Sound Power Level (SH/H/M/L/SL)	dB (A)	54/50/45/40/-	54/51/45/42/-
	Dimension (WXHXD)	mm	845X275X180	845X275X180
	Dimension of Carton Box (LXWXH)	mm	915X255X355	915X255X355
	Dimension of Package (LXWXH)	mm	918X258X370	918X258X370
	Net Weight	kg	9	9
	Gross Weight	kg	12	12

Outdoor Unit	Model of Outdoor Unit		GWH09MB-K3DNA3K/O	GWH12MB-K3DNA3K/O
	Compressor Manufacturer/Trademark		ZHUHAI LANDA COMPRESSOR CO., LTD.	ZHUHAI LANDA COMPRESSOR CO., LTD.
	Compressor Model		QXA-A091zE190A	QXA-A091zE190A
	Compressor Oil		FVC 68EP	FVC 68EP
	Compressor Type		Rotary	Rotary
	L.R.A.	A	16.5	16.5
	Compressor RLA	A	4.9	4.9
	Compressor Power Input	W	950	950
	Overload Protector		1NT11L-6233	1NT11L-6233
	Throttling Method		Electron expansion valve	Electron expansion valve
	Operation temp	ºC	16~30	16~30
	Ambient temp (Cooling)	ºC	-7~43	-7~43
	Ambient temp (Heating)	ºC	-7~24	-7~24
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	mm	Φ7	Φ7
	Rows-fin Gap	mm	1-1.4	2-1.4
	Coil Length (LXDXW)	mm	710X19.05X508	695X38.1X506
	Fan Motor Speed	rpm	900/650	900/650
	Output of Fan Motor	W	30	30
	Fan Motor RLA	A	0.15	0.15
	Fan Motor Capacitor	μF	-	-
	Air Flow Volume of Outdoor Unit	m^3/h	1800	1800
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	mm	Φ400	Φ400
	Defrosting Method		Automatic Defrosting	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IP24	IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
	Sound Pressure Level (H/M/L)	dB (A)	51/-/-	53/-/-
	Sound Power Level (H/M/L)	dB (A)	63/-/-	63/-/-
	Dimension (WXHXD)	mm	776X540X320	776X540X320
	Dimension of Carton Box (LXWXH)	mm	848X360X580	848X360X580
	Dimension of Package (LXWXH)	mm	851X363X595	851X363X595
	Net Weight	kg	28.0	29.0
	Gross Weight	kg	32.0	33.0
	Refrigerant		R410A	R410A
	Refrigerant Charge	kg	0.7	0.85
Connection Pipe	Length	m	5	5
	Gas Additional Charge	g/m	20	20
	Outer Diameter Liquid Pipe	mm	Φ6	Φ6
	Outer Diameter Gas Pipe	mm	Φ9.52	Φ9.52
	Max Distance Height	m	10	10
	Max Distance Length	m	15	15

The above data is subject to change without notice. Please refer to the nameplate of the unit.

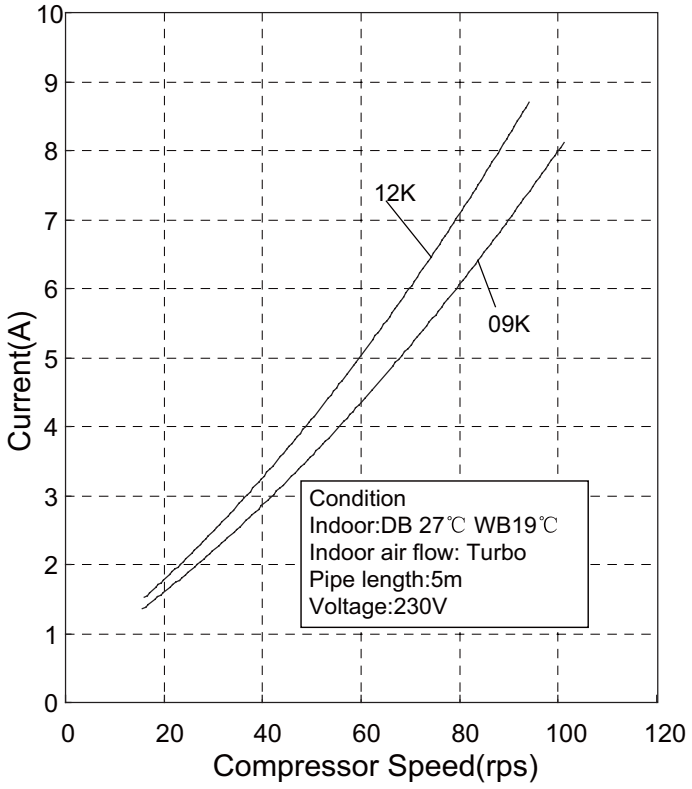
Model			GWH09MB-K3DNC9K GWH09MB-K3DNE1K	GWH12MB-K3DNC9K GWH12MB-K3DNE1K
Product Code			CB145003600 CB143001300	CB145003700 CB143001400
Power Supply	Rated Voltage	V~	220-240	220-240
	Rated Frequency	Hz	50	50
	Phases		1	1
Power Supply Mode			Indoor	Indoor
Cooling Capacity (Min~Max)		W	2700(600~3200)	3500(600~3900)
Heating Capacity (Min~Max)		W	2800(800~3600)	4000(880~4400)
Cooling Power Input (Min~Max)		W	870(185~1300)	1170(185~1400)
Heating Power Input (Min~Max)		W	900(220~1400)	1200(250~1550)
Cooling Power Current		A	3.8	5.2
Heating Power Current		A	3.92	5.3
Rated Input		W	1400	1600
Rated Current		A	6.69	7.8
Air Flow Volume(SH/H/M/L/SL)		m^3/h	600/500/400/300/-	580/500/400/300/-
Dehumidifying Volume		L/h	0.8	1.2
EER		W/W	3.10	2.99
COP		W/W	3.11	3.33
SEER		W/W	5.6	6.1
SCOP		W/W	3.8	4.0
Application Area		m^2	12-18	16-24
Indoor Unit	Model of Indoor Unit		GWH09MB-K3DNC9K/I GWH09MB-K3DNE1K/I	GWH12MB-K3DNC9K/I GWH12MB-K3DNE1K/I
	Fan Type		Cross-flow	Cross-flow
	Diameter Length(DXL)	mm	Φ92X645	Φ92X645
	Fan Motor Cooling Speed (SH/H/M/L/SL)	r/min	1260/1050/900/690/-	1290/1070/900/690/-
	Fan Motor Heating Speed (SH/H/M/L/SL)	r/min	1320/1200/1000/910/-	1280/1050/980/920/-
	Output of Fan Motor	W	20	20
	Fan Motor RLA	A	0.1	0.1
	Fan Motor Capacitor	μF	1.0	1.0
	Input of Heater	W	-	-
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	mm	Φ7	Φ7
	Row-fin Gap	mm	2-1.4	2-1.4
	Coil Length (LXDXW)	mm	636X25.4X267	636X25.4X267
	Swing Motor Model		MP24AA	MP24AA
	Output of Swing Motor	W	2	2
	Fuse	A	3.15	3.15
	Sound Pressure Level (SH/H/M/L/SL)	dB (A)	41/39/34/28/-	42/40/35/30/-
	Sound Power Level (SH/H/M/L/SL)	dB (A)	54/50/45/40/-	54/51/45/42/-
	Dimension (WXHXD)	mm	845X275X180	845X275X180
	Dimension of Carton Box (LXWXH)	mm	915X255X355	915X255X355
	Dimension of Package (LXWXH)	mm	918X258X370	918X258X370
	Net Weight	kg	9	9
	Gross Weight	kg	12	12

Outdoor Unit	Model of Outdoor Unit		GWH09MB-K3DNA3K/O	GWH12MB-K3DNA3K/O
	Compressor Manufacturer/Trademark		ZHUHAI LANDA COMPRESSOR CO., LTD.	ZHUHAI LANDA COMPRESSOR CO., LTD.
	Compressor Model		QXA-A091zE190A	QXA-A091zE190A
	Compressor Oil		FVC 68EP	FVC 68EP
	Compressor Type		Rotary	Rotary
	L.R.A.	A	16.5	16.5
	Compressor RLA	A	4.9	4.9
	Compressor Power Input	W	950	950
	Overload Protector		1NT11L-6233	1NT11L-6233
	Throttling Method		Electron expansion valve	Electron expansion valve
	Operation temp	ºC	16~30	16~30
	Ambient temp (Cooling)	ºC	-7~43	-7~43
	Ambient temp (Heating)	ºC	-7~24	-7~24
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	mm	Φ7	Φ7
	Rows-fin Gap	mm	1-1.4	2-1.4
	Coil Length (LXDXW)	mm	710X19.05X508	695X38.1X506
	Fan Motor Speed	rpm	900/650	900/650
	Output of Fan Motor	W	30	30
	Fan Motor RLA	A	0.15	0.15
	Fan Motor Capacitor	μF	-	-
	Air Flow Volume of Outdoor Unit	m^3/h	1800	1800
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	mm	Φ400	Φ400
	Defrosting Method		Automatic Defrosting	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IP24	IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
	Sound Pressure Level (H/M/L)	dB (A)	51/-/-	53/-/-
	Sound Power Level (H/M/L)	dB (A)	63/-/-	63/-/-
	Dimension (WXHXD)	mm	776X540X320	776X540X320
	Dimension of Carton Box (LXWXH)	mm	848X360X580	848X360X580
	Dimension of Package (LXWXH)	mm	851X363X595	851X363X595
	Net Weight	kg	28.0	29.0
	Gross Weight	kg	32.0	33.0
	Refrigerant		R410A	R410A
	Refrigerant Charge	kg	0.7	0.85
Connection Pipe	Length	m	5	5
	Gas Additional Charge	g/m	20	20
	Outer Diameter Liquid Pipe	mm	Φ6	Φ6
	Outer Diameter Gas Pipe	mm	Φ9.52	Φ9.52
	Max Distance Height	m	10	10
	Max Distance Length	m	15	15

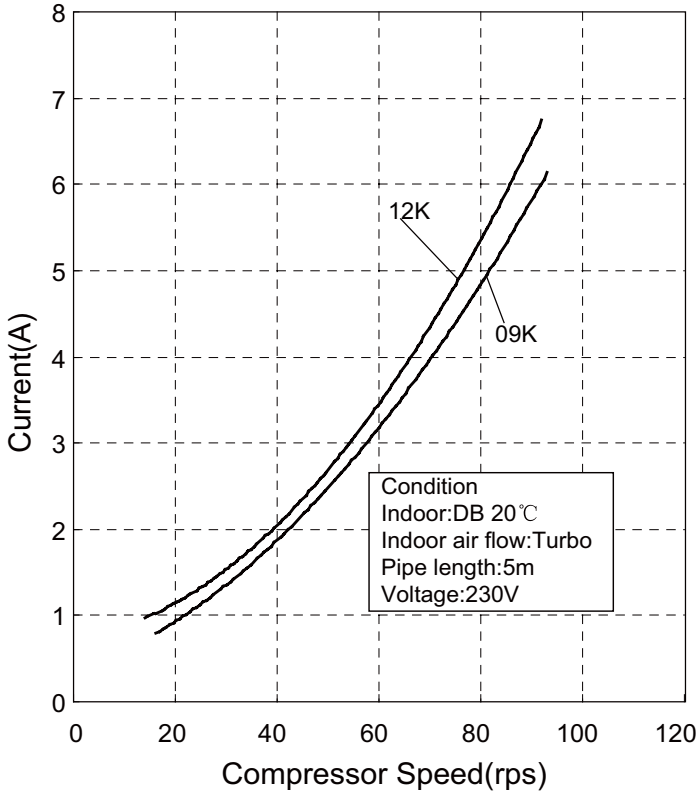
The above data is subject to change without notice. Please refer to the nameplate of the unit.

2.2 Operation Characteristic Curve

Cooling

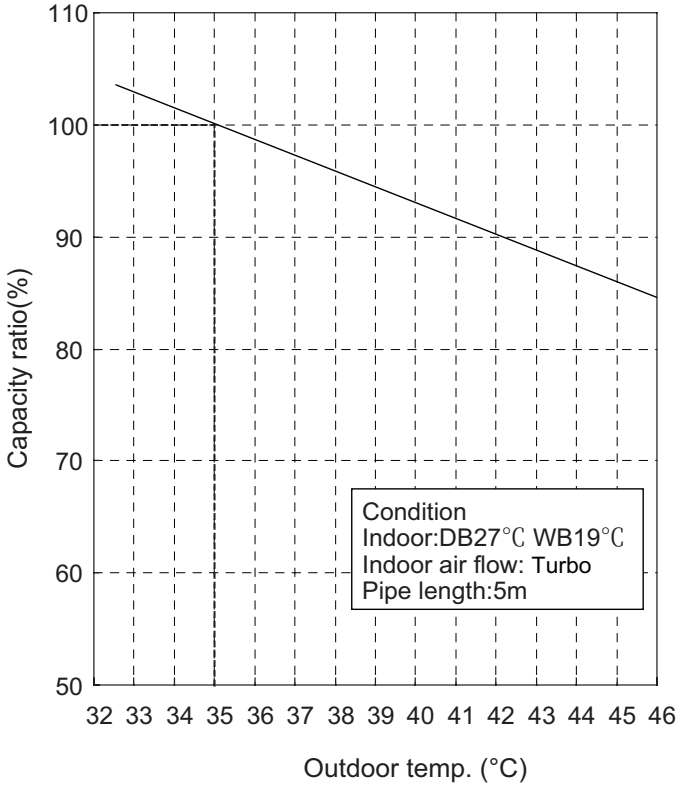


Heating

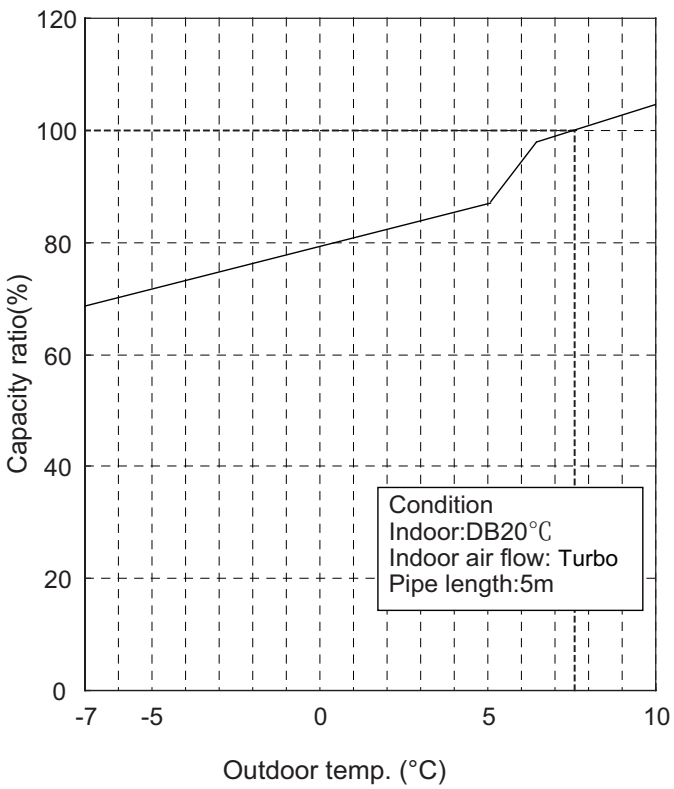


2.3 Capacity Variation Ratio According to Temperature

Cooling

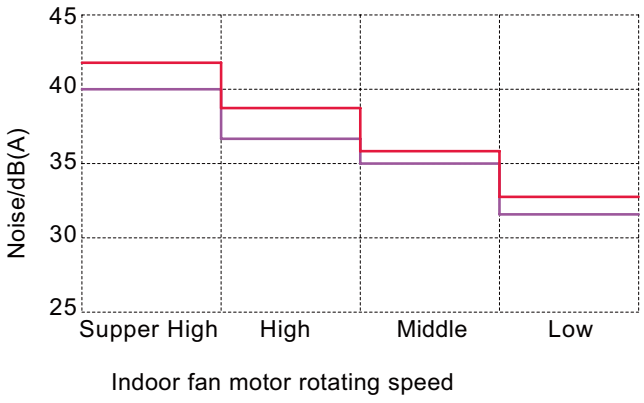


Heating

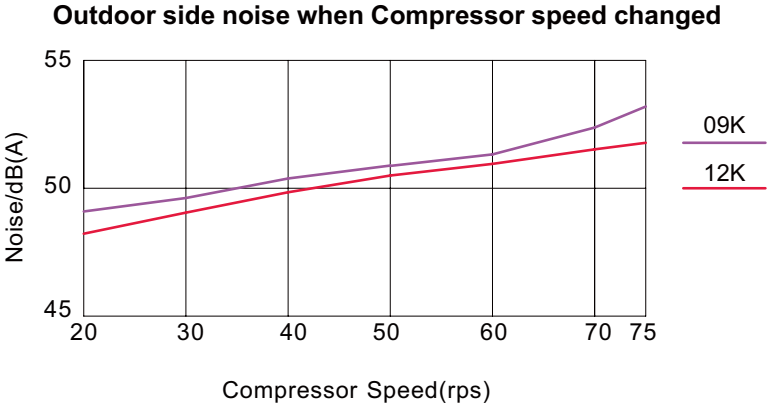


2.4 Noise Criteria Curve Tables for Both Models

Indoor side noise when blowing



Outdoor side noise when Compressor speed changed



2.5 Operation Data

Cooling

Temperature condition (℃)		Model name	Standard pressure	Heat exchanger pipe temp		Indoor fan mode	Outdoor fan mode(rpm)	Compressor revolution (rps)
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)			
27/19	35/24	09K	0.8 ~ 1.1	12 to 15	65 to 38	TURBO	900	54
		12K		11 to 14	64 to 37			60

Heating

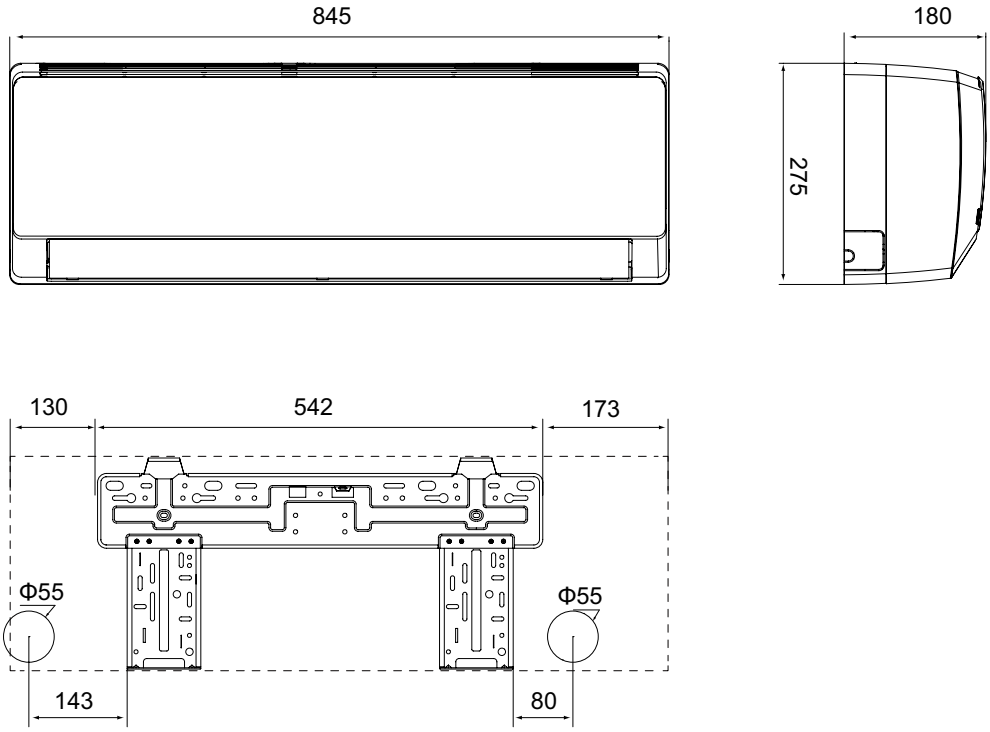
Temperature condition (℃)		Model name	Standard pressure	Heat exchanger pipe temp		Indoor fan mode	Outdoor fan mode(rpm)	Compressor revolution (rps)
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)			
20/-	7/6	09K	2.8 ~ 3.2	35 to 63	2 to 5	TURBO	900	62
		12K		35 to 65	2 to 5			66

P: The air pipe pressure (gas valve side pressure) connect to indoor and oudoor unit
T1: Inlet and outlet pipe temperature of evaporator
T2: Inlet and outlet pipe temperature of condenser

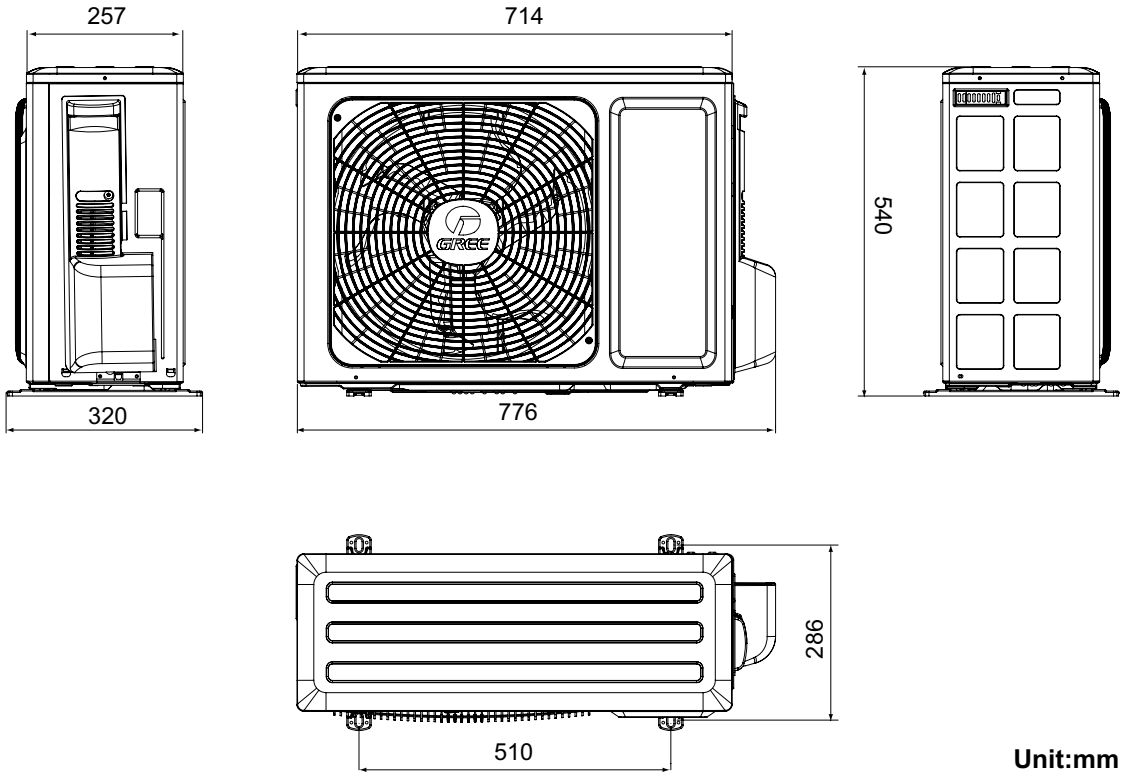
NOTES :
(1) Measure surface temperature of heat exchanger pipe around center of heat exchanger path U bent. (Thermistor themometer)
(2) Connecting piping condition : 5m

3. Construction Views

3.1 Indoor Unit

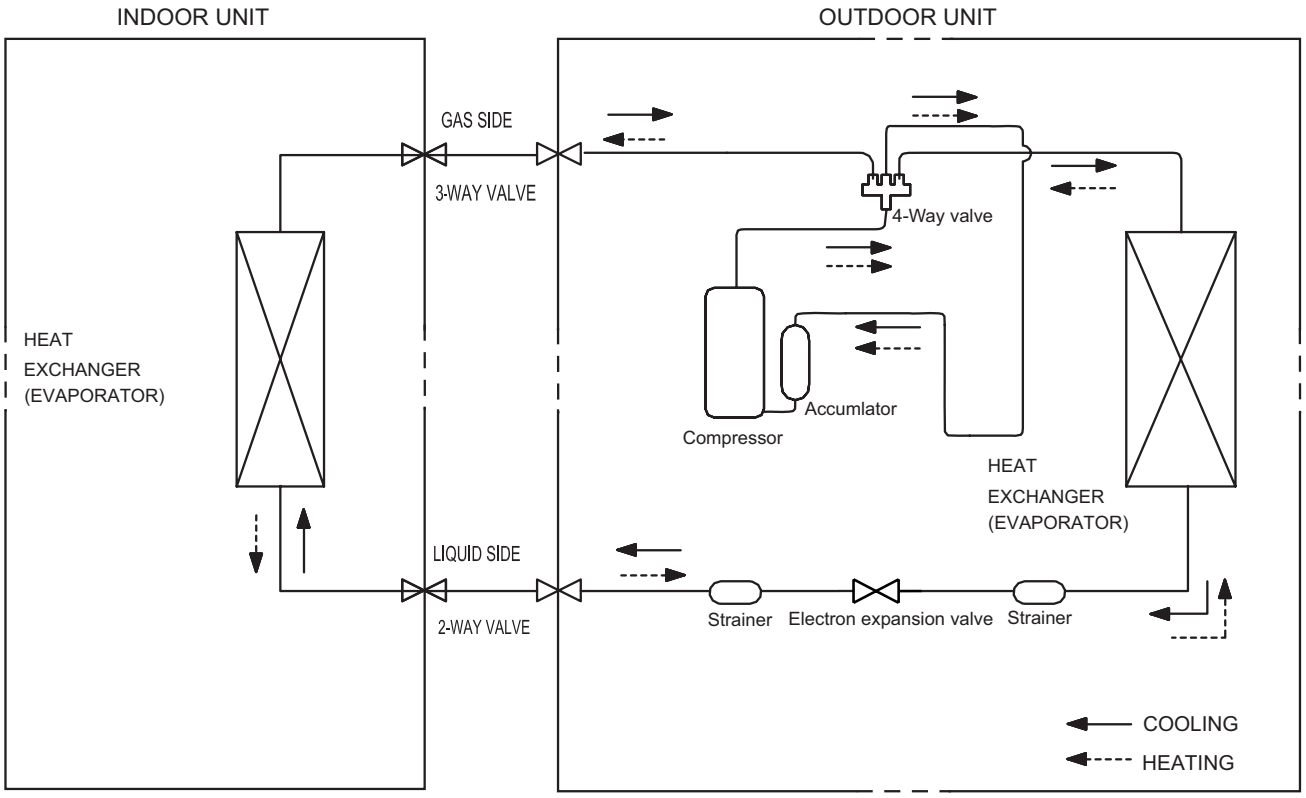


3.2 Outdoor Unit



Unit:mm

4. Refrigerant System Diagram



Refrigerant pipe diameter
Liquid : 1/4" (6 mm)
Gas : 3/8" (9.52 mm)

5. Schematic Diagram

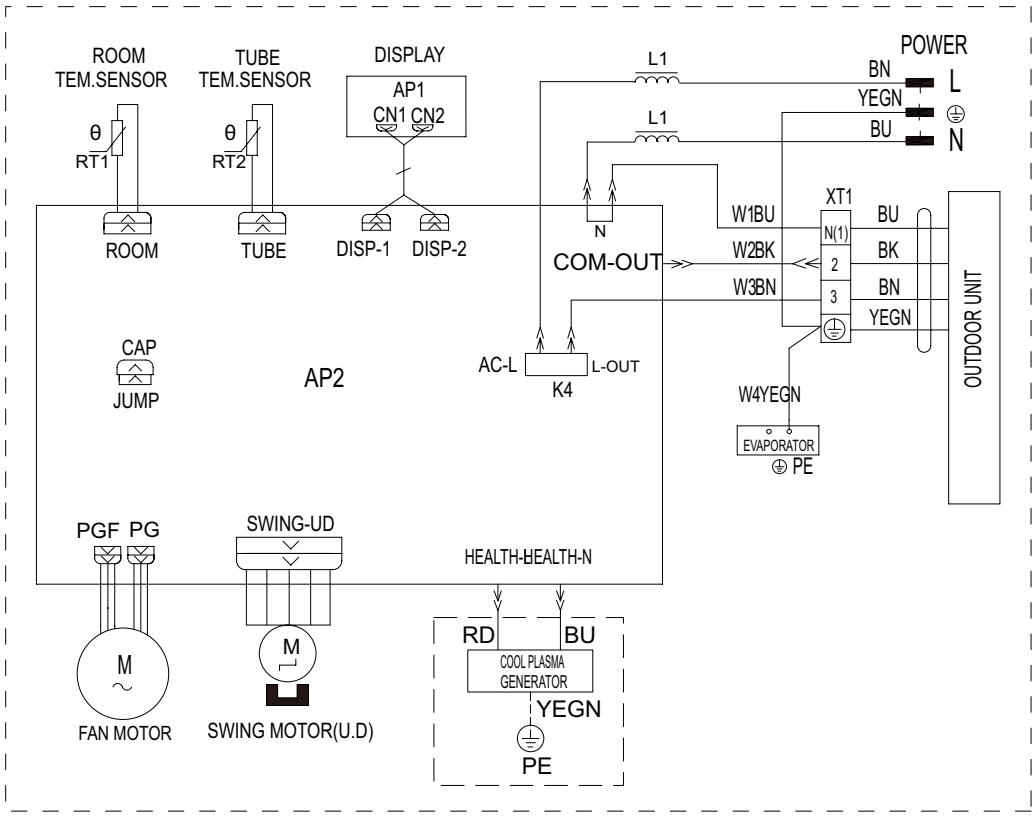
5.1 Electrical Data

Meaning of marks

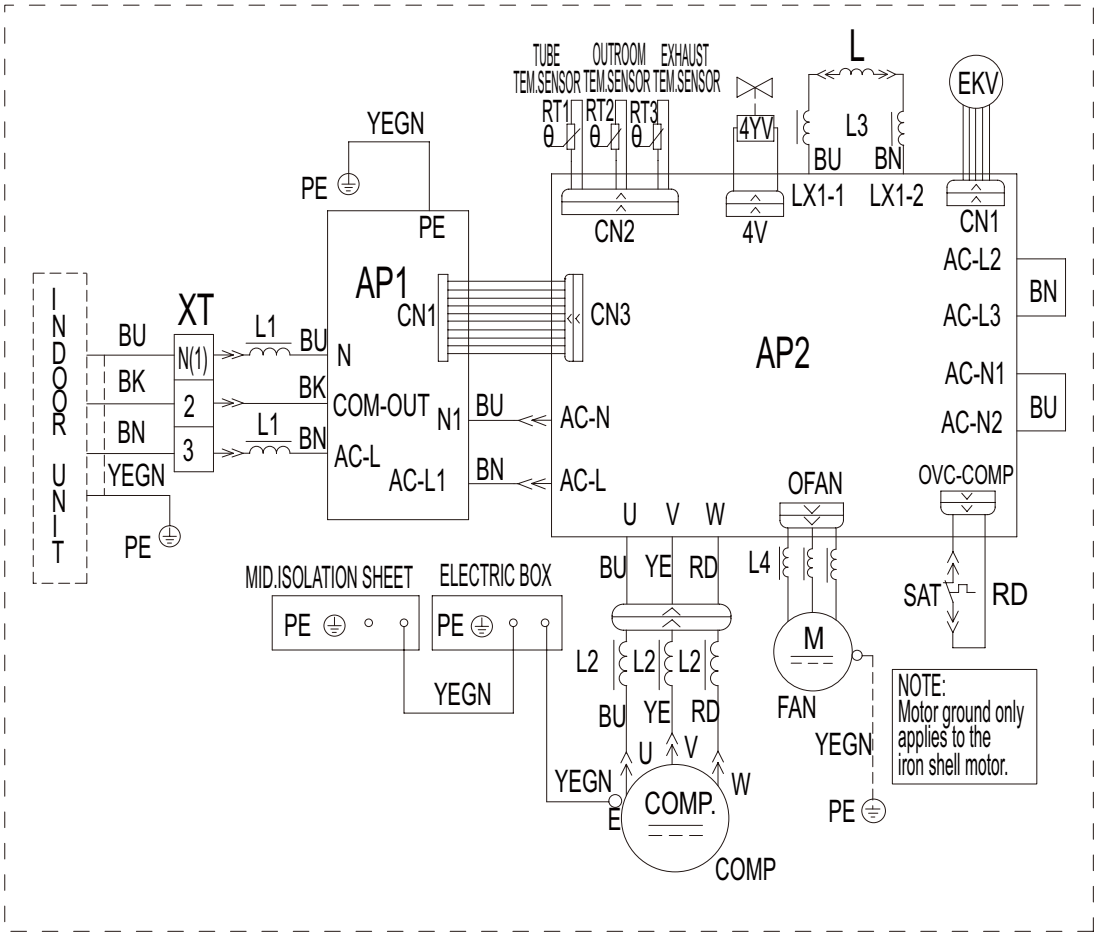
Symbol	Color Symbol	Symbol	Parts Name
OG	ORANGE	⏚	PROTECTIVE EARTH
WH	WHITE	COMP	COMPRESSOR
YE	YELLOW	SAT	OVERLOAD
RD	RED	4YV	4-WAY VALVE
YEGN	YELLOW GREEN	XT	TERMINAL BLOCK
BN	BROWN		
BU	BLUE		
BK	BLACK		

5.2 Electrical Wiring

●Indoor Unit



●Outdoor Unit

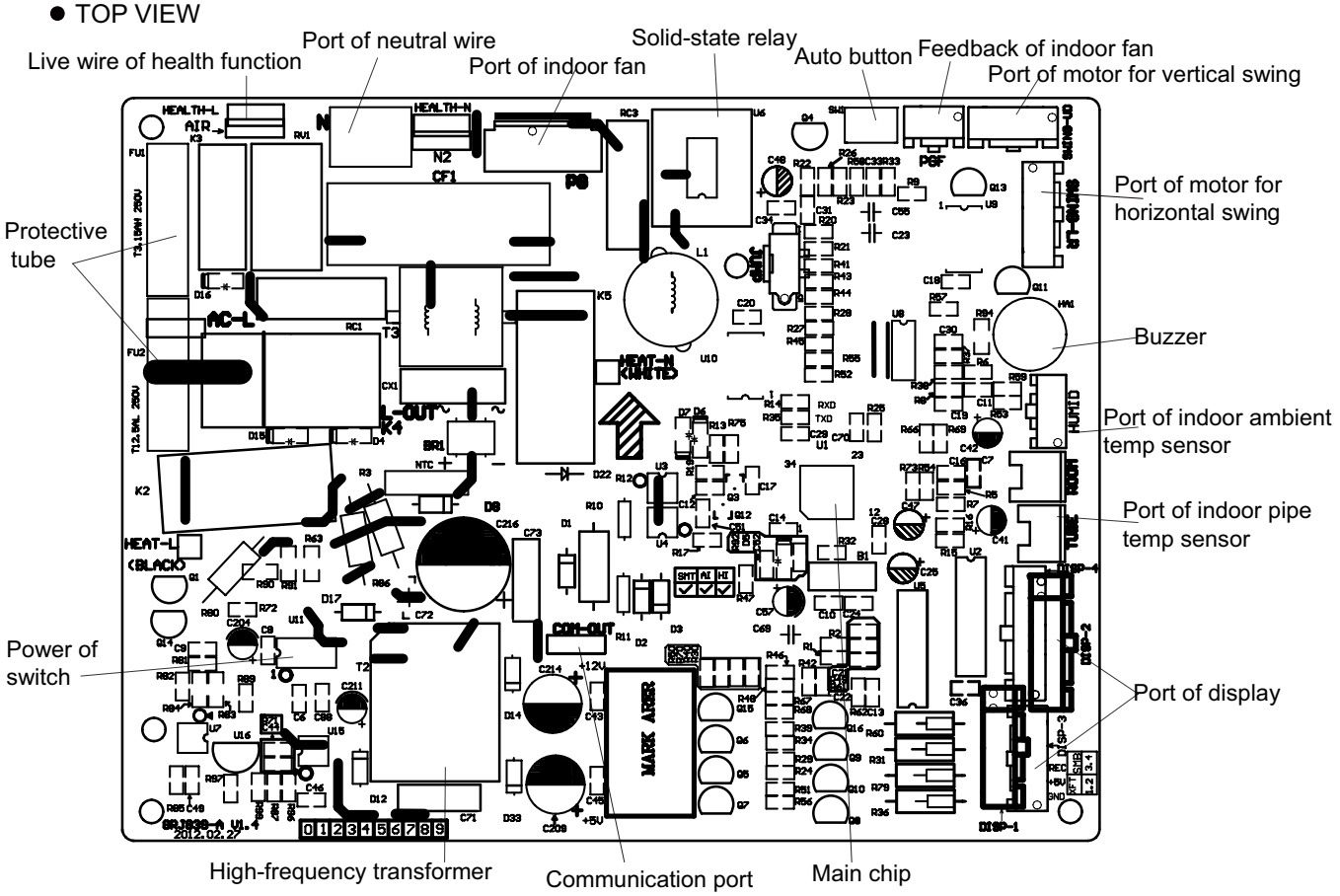


These circuit diagrams are subject to change without notice, please refer to the one supplied with the unit.

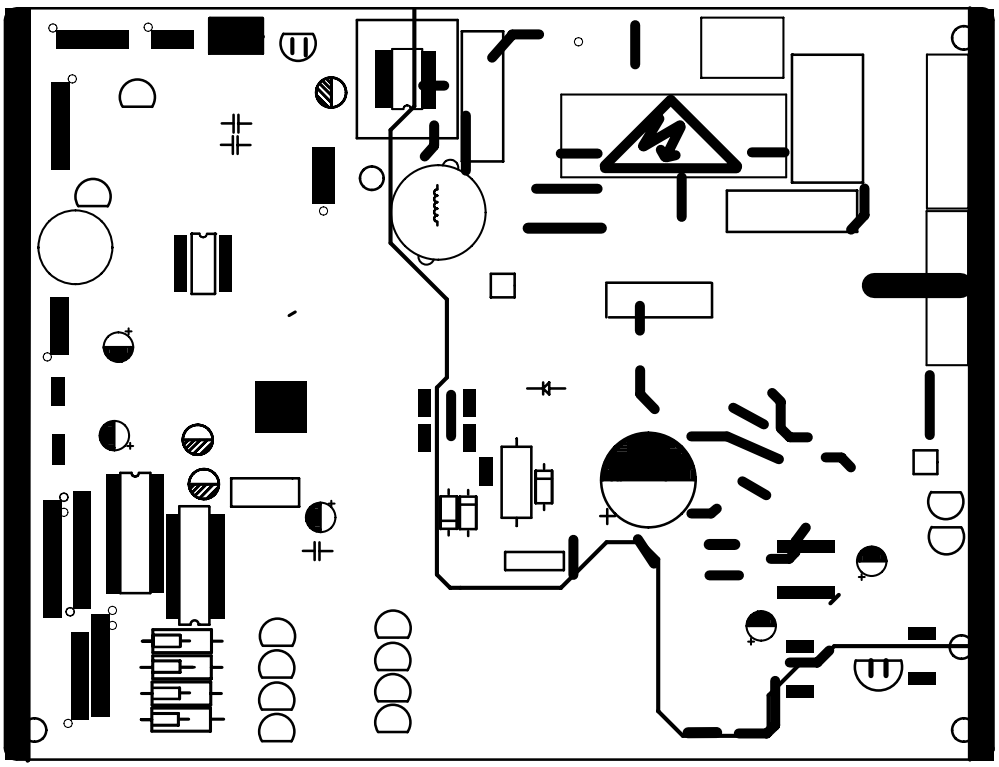
5.3 Printed Circuit Board

(1)Indoor Unit

- TOP VIEW

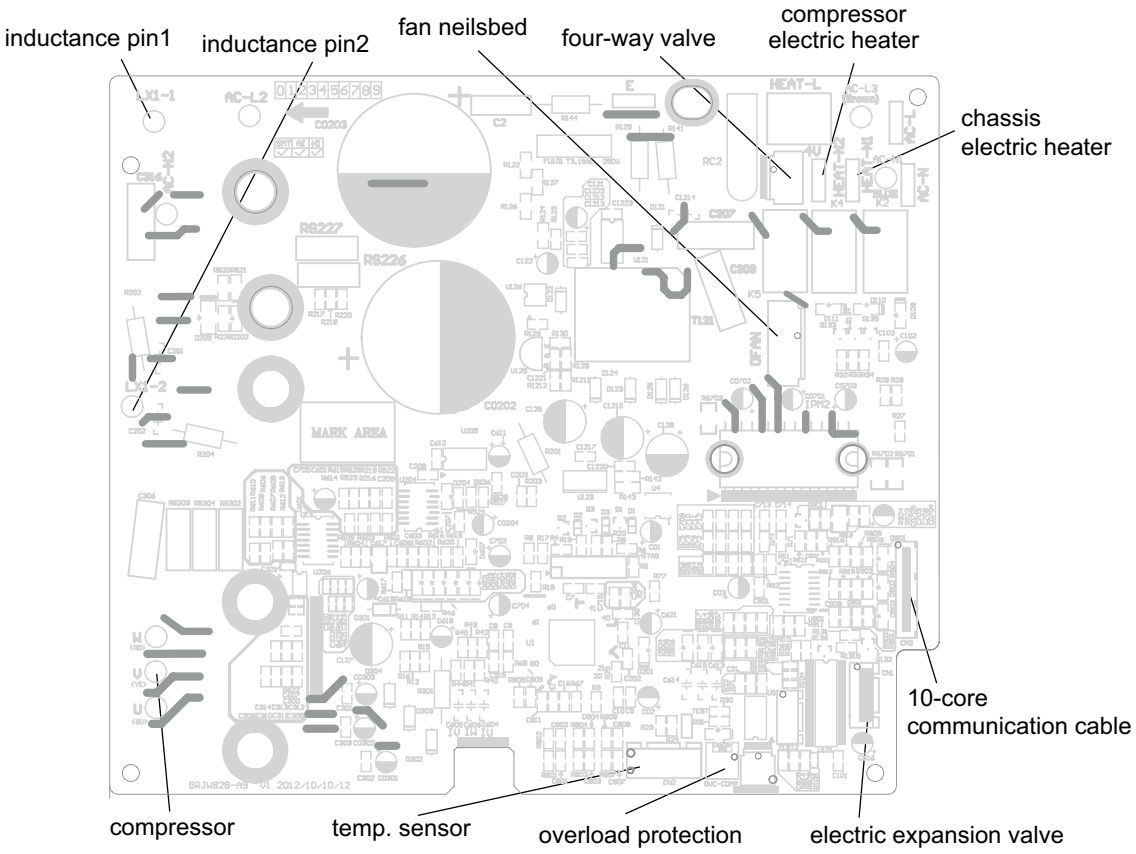


- BOTTOM VIEW

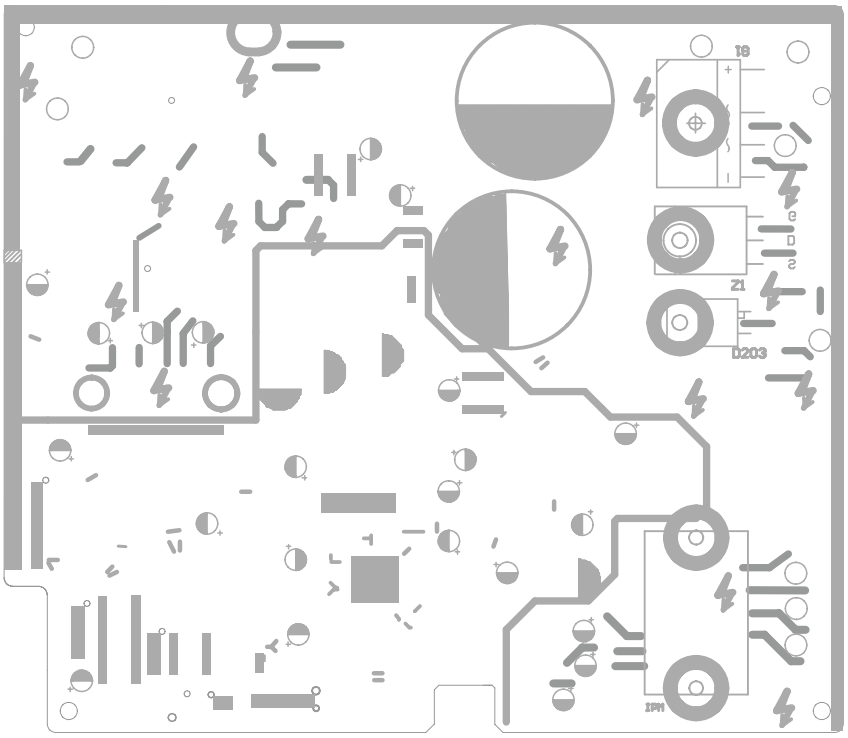


(2)Outdoor Unit

- **TOP VIEW**



- **BOTTOM VIEW**



6. Function and Control

6.1 Remote Control Operations

1 ON/OFF

Press it to start or stop operation.

2 MODE

Press it to select operation mode (AUTO/COOL/DRY/FAN/HEAT).

3 +

Press it to increase temperature setting.

4 -

Press it to decrease temperature setting.

5 FAN

Press it to set fan speed.

6

Press it to set swing angle.

7 TIMER ON

Press it to set auto-on timer.

8 TIMER OFF

Press it to set auto-off timer.

9 CLOCK

Press it to set clock.

10 X-FAN (X-FAN is the alternative expression of BLOW for the purpose of understanding.)

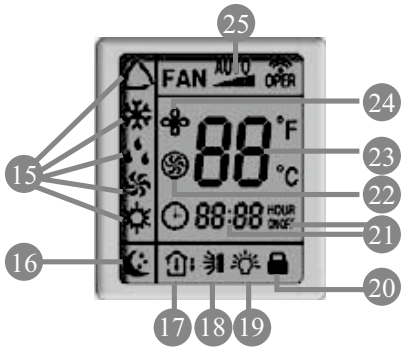
11 TEMP

12 TURBO

13 SLEEP

14 LIGHT

Press it to turn on/off the light.



15 MODE icon:

If MODE button is pressed, current operation mode icon (AUTO), (COOL), (DRY), (FAN) or (HEAT is only for heat pump models) will show.

16 SLEEP icon :

is displayed by pressing the SLEEP button. Press this button again to clear the display.

17 TEMP icon:

Pressing TEMP button, (set temperature), (indoor ambient temperature), (outdoor ambient temperature) and blank is displayed circularly.

18 Up & down swing icon:

is displayed when pressing the up & down swing button. Press this button again to clear the display.

19 LIGHT icon:

is displayed by pressing the LIGHT button.Press LIGHT button again to clear the display.

20 LOCK icon:

is displayed by pressing "+" and “-” buttons simultaneously.Press them again to clear the display.

21 SET TIME display:

After pressing TIMER button, ON or OFF will blink.This area will show the set time.

22 TURBO icon:

is displayed when pressing theTURBO button.Press this button again to clear the display.

23 DIGITAL display:

This area will show the set temperature. During defrosting operation, “H1” will be displayed.

24 X-FAN icon:

is displayed when pressing the X-FAN button. Press this button again to clear the display.

25 FAN SPEED display:

Press FAN button to select the desired fan speed setting(AUTO Low-Med-High).Your selection will be displayed in the LCD windows, except the AUTO fan speed.

1 ON/OFF:

Press this button to turn on the unit. Press this button again to turn off the unit.

2 MODE:

Each time you press this button,a mode is selected in a sequence that goes from AUTO, COOL,DRY, FAN, and HEAT *, as the following:

AUTO ▶ COOL ▶ DRY ▶ FAN ▶ HEAT*

*Note: Only for models with heating function.

After energization, AUTO mode is defaulted. In AUTO mode, the set temperature will not be displayed on the LCD, and the unit will automatically select the suitable operation mode in accordance with the room temperature to make indoor room comfortable.

3 + :

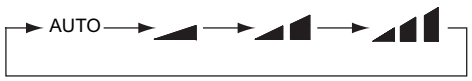
Press this button to increase set temperature. Hold it down for above 2 seconds to rapidly increase set temperature. In AUTO mode, set temperature is not adjustable.

4 -:

Press this button to decrease set temperature. Hold it down for above . 2 seconds to rapidly decrease set temperature. In AUTO mode, set temperature is not adjustable.

5 FAN :

This button is used for setting fan speed in the sequence that goes from AUTO, , , to then back to Auto.



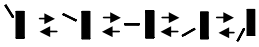
Low speed Medium speed High speed

6

Press this button to set up & down swing angle, which circularly changes as below:

This remote controller is universal. If any command , or is sent out, the unit will carry out the command as

indicates the guide louver swings as:



7 TIMER ON:

Press this button to initiate the auto-ON timer. To cancel the auto-timer program, simply press this button again. After pressing this button, ⏲ disappears and "ON" blinks . 0 0:00 is displayed for ON time setting. Within 5 seconds, press + or - button to adjust the time value. Every press of either button changes the time setting by 1 minute. Holding down either button rapidly changes the time setting by 1 minute and then 10 minutes. Within 5 seconds after setting, press TIMER ON button to confirm.

8 TIMER OFF:

Press this button to initiate the auto-off timer. To cancel the auto-timer program, simply press the button again.TIMER OFF setting is the same as TIMER ON.

9 CLOCK :

Pressing CLOCK button, ⏲ blinks. Within 5 seconds, pressing + or - button adjusts the present time. Holding down either button above 2 seconds increases or decreases the time by 1 minute every 0.5 second and then by 10 minutes every 0.5 second. During blinking after setting, press CLOCK button again to confirm the setting, and then ⏲ will be constantly displayed.

10 X-FAN:

Pressing X -FAN button in COOL or DRY mode,the icon ✿ is displayed and the indoor fan will continue operation for 10 minutes in order to dry the indoor unit even though you have turned off the unit.

After energization, X-FAN OFF is defaulted. X-FAN is not available in AUTO, FAN or HEAT mode.

11 TEMP:

Press this button, could select displaying the indoor setting temperature or indoor ambient temperature.When the indoor unit firstly power on it will display the setting temperature, if the temperature's displaying status is changed from other status to" ⌂ ",displays the ambient temperature, 5s later or within 5s, it receives other remote control signal that will return to display the setting temperature. if the users haven't set up the temperature displaying status,that will display the setting temperature.

12 TURBO:

Press this button to activate / deactivate the Turbo function which enables the unit to reach the preset temperature in the shortest time. In COOL mode, the unit will blow strong cooling air at super high fan speed. In HEAT mode, the unit will blow strong heating air at super high fan speed.

13 SLEEP:

Press this button to go into the SLEEP operation mode. Press it again to cancel this function. This function is available in COOL, HEAT (Only for models with heating function) or DRY mode to maintain the most comfortable temperature for you.

14 LIGHT:

Press LIGHT button to turn on the display's light and press this button again to turn off the display's light. If the light is turned on , 💡 is displayed. If the light is tunrned off, 💡 disappears.

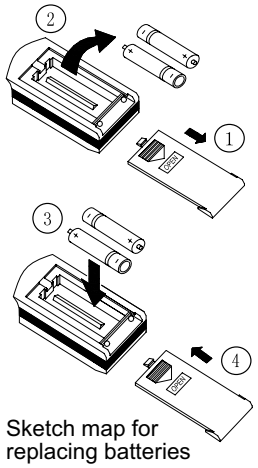
15 Combination of "+" and "-" buttons: About lock

Press "+ " and "-" buttons simultaneously to lock or unlock the keypad. If the remote controller is locked, 🔒 is displayed. In this case, pressing any button, 🔒 blinks three times.

16 Combination of "MODE" and "-" buttons:About switch between Fahrenheit and Centigrade At unit OFF, press "MODE" and "- " buttons simultaneously to switch between ℃ and ℉.

Replacement of Batteries

1.Remove the battery cover plate from the rear of the remote controller.
(As shown in the figure)
2.Take out the old batteries.
3.Insert two new AAA1.5V dry batteries, and pay attention to the polarity.
4. Reinstall the battery cover plate.



Sketch map for replacing batteries

★Notes:

●When replacing the batteries, do not use old or different types of batteries. Otherwise, it may cause malfunction.
●If the remote controller will not be used for a long time, please remove batteries to prevent batteries from leaking.
●The operation should be performed in its receiving range.
●It should be kept 1m away from the TV set or stereo sound sets.
●If the remote controller does not operate normally, please take the batteries out and reinsert them after 30 seconds. If it still can't operate properly, replace the batteries.

6.2 Description of Each Control Operation

1. Temperature Parameters

- Indoor preset temperature (T_{preset})
- Indoor ambient temperature ($T_{amb.}$)

2. Basic Functions

Once energized, in no case should the compressor be restarted within less than 3 minutes. In the situation that memory function is available, for the first energization, if the compressor is at stop before de-energization, the compressor will be started without a 3-minute lag; if the compressor is in operation before de-energization, the compressor will be started with a 3-minute lag; and once started, the compressor will not be stopped within 6 minutes regardless of changes in room temperature;

(1)COOL mode

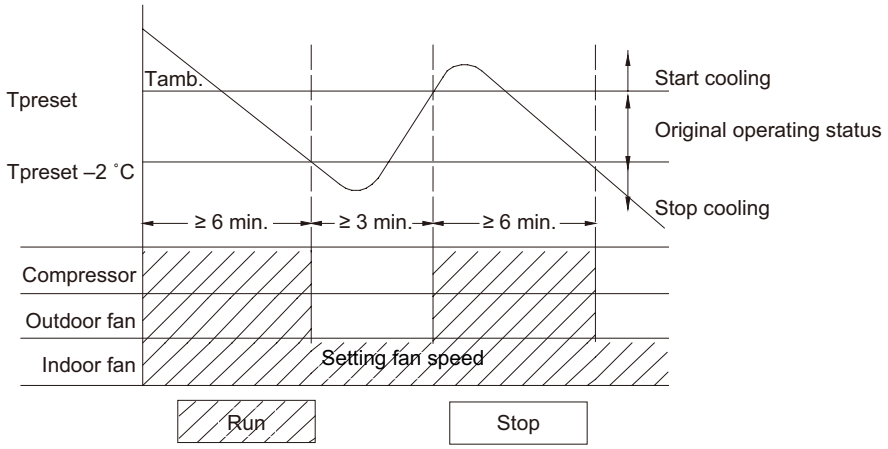
①The condition and process of cooling

If $T_{amb.} \geq T_{preset}$ COOL mode will act, the compressor and outdoor fan will run, and the indoor fan will run at the set speed.

If $T_{amb.} \leq T_{preset}$-2 ℃, the compressor will stop, the outdoor fan will delay 30 seconds to stop, and the indoor fan will run at the set speed.

If T_{preset}-2℃ $\leq T_{amb} \leq T_{preset}$, the unit will keep running in the previous mode.

In this mode, the reversal valve will not be powered on and the temperature setting range is 16℃ ~30℃.



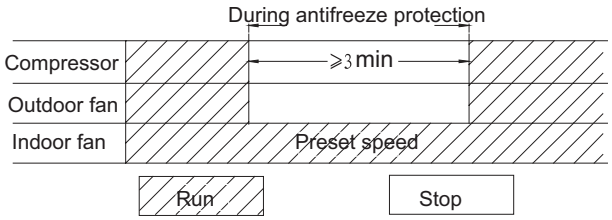
②Protection function

◆Overcurrent protection

If total current is high, the compressor will run in limited frequency. If total current is too high, the compressor will stop, the outdoor fan will delay 30 seconds to stop, indoor unit will display E5 and outdoor yellow light will blink 5 times.

◆Antifreezing protection

When the antifreezing protection is detected, the compressor will stop, the outdoor fan will stop after 30 seconds, and the indoor fan and swing motor will keep running in the original mode. When antifreezing protection is eliminated and the compressor has stopped for 3 minutes, the compressor will resume running in the original mode.



(2) Dehumidifying Mode

① Working conditions and process of dehumidifying

If $T_{amb.} > T_{preset}$, the unit will enter cooling and dehumidifying mode, in which case the compressor and the outdoor fan will operate and the indoor fan will run at low speed.

If T_{preset} -2℃ $\leqslant T_{amb.} \leqslant T_{preset}$, the compressor remains at its original operation state.

If $T_{amb.} < T_{preset}$ -2℃, the compressor will stop, the outdoor fan will stop with a time lag of 30s, and the indoor fan will operate at low speed.

② Protection

Protection is the same as that under the cooling mode.

(3) HEAT Mode

① **Working conditions and process of heating**

If Tamb.≤Tpreset +2°C, the unit enters heating mode, in which case the four-way valve, the compressor and the outdoor fan will operate simultaneously, and the indoor fan will run at preset speed in the condition of preset cold air prevention.

If T amb.≥Tpreset +5°C, the compressor will stop, the outdoor fan will stop with a time lag of 30s, and the indoor fan will stop after 60-second blow at low speed

If Tpreset +2°C<T amb.< Tpreset +5°C, the unit will maintain its original operating status.

Under this mode, the four-way valve is energized and temperature can be set within a range of 16 - 30°C. The operating symbol, the heating symbol and preset temperature are revealed on the display.

② Condition and process of defrost

When duration of successive heating operation is more than 45 minutes, or accumulated heating time more than 90 minutes, and one of the following conditions is reached, the unit will enter the defrost mode after 3 minutes.

(1). T outdoor ambient ＞ 5°C, T outdoor tube≤-2°C;

(2) -2°C≤T outdoor ambient ＜ 5°C, T outdoor tube≤-6°C;

(3) -5°C≤T outdoor ambient ＜ -2°C, T outdoor tube≤-8°C;

(4)-10°C≤T outdoor ambient ＜ -5°C, T outdoor tube-T compensatory ≤ (T outdoor ambient-3°C)

(5)T outdoor ambient ＜ -10°C, T outdoor tube-T compensatory ≤ (T outdoor ambient-3°C)

(after energizing, T compensatory=0°C during the first defrosting; if it is not the first defrosting, T compensatory is confirmed by T outdoor tube of quitting last defrosting: a. when T outdoor tube ＞ 2°C, T compensatory=0°C; b. when T outdoor tube ≤ 2°C, T compensatory=3°C)

At that time, the indoor fan stops and the compressor stops, and after 30 seconds the outer fan will stop, and then after 30 seconds, the four-way valve will stop. After 30 seconds, the compressor is initiated for raising the frequency to defrost frequency.

When the compressor has operated under defrost mode for 7.5 minutes, or T outdoor ambient ≥ 10°C, the compressor will be converted to 46Hz operation. After 30 seconds, the compressor will stop. And after another 30 seconds, the four-way valve will be opened, and after 60 seconds, the compressor and the outer fan will be started, the indoor fan will run under preset cold air prevention conditions, and H1 will be displayed at temperature display area on the display panel. Defrost frequency is 85Hz.

③ **Protection**

◆ **Cold air prevention**

The unit is started under heating mode (the compressor is ON):

① In the case of T indoor amb. <24°C: if T tube≤40°C and the indoor fan is at stop state, the indoor fan will begin to run at low speed with a time lag of 2 minutes. Within 2 minutes, if T tube>40°C, the indoor fan also will run at low speed; and after 1-minute operation at low speed, the indoor fan will be converted to operation at preset speed. Within 1-minute low speed operation or 2-minute non-operation, if T tube>42°C, the fan will run at present speed.

② In the case of T indoor amb. ≥24°C: if T tube≤42°C, the indoor fan will run at low speed, and after one minute, the indoor fan will be converted to preset speed. Within one-minute low speed operation, if T tube>42°C, the indoor fan will be converted to preset speed.

Note: T indoor amb. indicated in ① and ② refers to, under initially heating mode, the indoor ambient temperature before the command to start the compressor is performed according to the program, or after the unit is withdrawn from defrost, the indoor ambient temperature before the defrost symbol is cleared.

◆ **Total current up and frequency down protection**

If the total current Itotal≤6A, frequency rise will be allowed; if Itotal≥7A, frequency rise will not be allowed; if Itotal≥8A, the compressor will run at reduced frequency; and if Itotal≥9A, the compressor will stop and the outdoor fan will stop with a time lag of 30s.

(4) Fan Mode

Under the mode, the indoor fan will run at preset speed and the compressor, the outdoor fan, the four-way valve and the electric heater will stop.

Under the mode, temperature can be set within a range of 16 - 30°C .

(5) AUTO Mode

① **Working conditions and process of AUTO mode**

a. When T ambient ≥26°C, the unit will operate in Cool mode. The set temperature is 25°C.

b. When T ambient ≤22°C, the heat pump unit will operate in Heat mode., set temperature be 20°C; the cooling only unit will operate in Fan mode, set temperature be 25°C.

c. When 23°C≤T ambient ≤25°C, the unit will operate in the previous state. If it is energized for the first time, it will operate in Fan mode.

d. Under auto mode, if its cooling mode, operation frequency is same as that under cooling mode; if its heating mode, operation frequency is same as that under heating mode.

② **Protection**

a. In cooling operation, protection is the same as that under the cooling mode;

b. In heating operation, protection is the same as that under the heating mode;

c. When ambient temperature changes, operation mode will be converted preferentially. Once started, the compressor will remain unchanged for at least 6 minutes.

(6) Common Protection Functions and Fault Display under COOL, HEAT, DRY and AUTO Modes

① **Overload protection**

T tube: measured temperature of outdoor heat exchanger under cooling mode; and measured temperature of indoor heat exchanger under heating mode.

1) Cooling overload

a. If T tube≤52°C, the unit will return to its original operation state.

b. If T tube≥55°C, frequency rise is not allowed.

c. If T tube≥58°C, the compressor will run at reduced frequency.

d. If T tube≥62°C, the compressor will stop and the indoor fan will run at preset speed.

2) Heating overload

a. If T tube≤50°C, the unit will return to its original operation state.

b. If T tube≥53°C, frequency rise is not allowed.

c. If T tube≥56°C, the compressor will run at reduced frequency.

d. If T tube≥60°C, the compressor will stop and the indoor fan will blow residue heat and then stop.

② **Exhaust temperature protection of compressor**

If exhaust temperature ≥98°C, frequency is not allowed to rise.

If exhaust temperature ≥103°C, the compressor will run at reduced frequency.

If exhaust temperature ≥110°C, the compressor will stop.

If exhaust temperature ≤90°C and the compressor has stayed at stop for at least 3 minutes, the compressor will resume its operation.

③ **Communication fault**

If the unit fails to receive correct signals for durative 3 minutes, communication fault can be justified and the whole system will stop.

④ **Module protection**

Under module protection mode, the compressor will stop. When the compressor remains at stop for at least 3 minutes, the compressor will resume its operation. If module protection occurs six times in succession, the compressor will not be started again.

⑤ **Overload protection**

If temperature sensed by the overload sensor is over 115°C, the compressor will stop and the outdoor fan will stop with a time lag of 30 seconds. If temperature is below 95°C, the overload protection will be relieved°C.

⑥ **DC bus voltage protection**

If voltage on the DC bus is below 150V or over 420V, the compressor will stop and the outdoor fan will stop with a time lag of 30 seconds. When voltage on the DC bus returns to its normal value and the compressor has stayed at stop for at least 3 minutes, the compressor will resume its operation.

⑦ **Faults of temperature sensors**

3. Other Controls

(1) ON/OFF

Press the remote button ON/OFF: the on-off state will be changed once each time you press the button.

(2) Mode Selection

Press the remote button MODE, then select and show in the following ways: AUTO, COOL, DRY, FAN, HEAT, AUTO.

(3) Temperature Setting Option Button

Each time you press the remote button TEMP+ or TEMP-, the setting temperature will be up or down by 1°C. Regulating Range: 16~30°C, the button is useless under the AUTO mode.

(4) Time Switch

You should start and stop the machine according to the setting time by remote control.

(5) SLEEP State Control

1. In cooling mode:

1.1 When the initial set temperature is 16-23°C,the temperature will rise 1°C by every hour after sleep function is set; the temperature will not change after rising 3°C; after running for 7 hours, the temperature will decrease 1°C and it will not change after that.

1.2 When the initial set temperature is 24-27°C,the temperature will rise 1°C by every hour after sleep function is set; the temperature will not change after rising 2°C;after running for 7 hours, the temperature will decrease 1°C and it will not change after that.

1.3 When the initial set temperature is 28-29°C,the temperature will rise 1°C by every hour after sleep function is set; the temperature will not change after rising 1°C; after running for 7 hours, the temperature will decrease 1°C and it will not change after that.

1.4 When the initial set temperature is 30°C, the unit will keep on running at this temperature; after running for 7 hours, the temperature will decrease 1°C and it will not change after that.

Relationship between set temperature and running time:

Initial Temp.	Running time(T)							
0(start)	1	2	3	4	5	6	7	8
16	17	18	19	19	19	19	18	18
17	18	19	20	20	20	20	19	19
18	19	20	21	21	21	21	20	20
19	20	21	22	22	22	22	21	21
20	21	22	23	23	23	23	22	22
21	22	23	24	24	24	24	23	23
22	23	24	25	25	25	25	24	24
23	24	25	26	26	26	26	25	25
24	25	26	26	26	26	26	25	25
25	26	27	27	27	27	27	26	26
26	27	28	28	28	28	28	27	27
27	28	29	29	29	29	29	28	28
28	29	29	29	29	29	29	28	28
29	30	30	30	30	30	30	29	29
30	30	30	30	30	30	30	29	29

2. In heating mode:

2.1 When the initial set temperature is 16°C, the unit will keep on running at this temperature;

2.2 When the initial set temperature is 17-20°C, the temperature will decrease 1°C by every hour after sleep function is set; the temperature will not change after decreasing 1°C;

2.3 When the initial set temperature is 21-27°C, the temperature will decrease 1°C by every hour after sleep function is set; the temperature will not change after decreasing 2°C;

2.4 When the initial set temperature is 28-30°C, the temperature will decrease 1°C by every hour after sleep function is set; the temperature will not change after decreasing 3°C;

Relationship between set temperature and running time:

Initial Temp.	Running time(T)							
0(start)	1	2	3	4	5	6	7	8
16	16	16	16	16	16	16	16	16
17	16	16	16	16	16	16	16	16
18	17	17	17	17	17	17	17	17
19	18	18	18	18	18	18	18	18
20	19	19	19	19	19	19	19	19
21	20	19	19	19	19	19	19	19
22	21	20	20	20	20	20	20	20
23	22	21	21	21	21	21	21	21
24	23	22	22	22	22	22	22	22
25	24	23	23	23	23	23	23	23
26	25	24	24	24	24	24	24	24
27	26	25	25	25	25	25	25	25
28	27	26	25	25	25	25	25	25
29	28	27	26	26	26	26	26	26
30	29	28	27	27	27	27	27	27

(6) Indoor Fan Control

The Indoor Fan can be set as HIGH, MED, LOW by remote control, and the Indoor Fan will be respectively run at high, medium, low speed. It will also be set as AUTO, and the Indoor Fan is as the followings at the automatic wind speed.

① Cooling mode: in auto cooling mode or normal cooling mode, the auto fan speed will run at below mode:

a. When Tamb.≥Tpreset+2°C, the indoor fan will run at high speed;

b. When Tpreset<Tamb.<Tpreset+2°C, the indoor fan will run at middle speed;

c. Tamb.≤Tpreset, the indoor fan will run at low speed;

Switches between high speed and middle speed, middle speed and low speed, high speed and low speed, running time of 3.5 minutes must be ensured.

② Heating mode: in auto heating mode or normal heating mode, the auto fan speed will run at below mode:

a. When Tamb.≤Tpreset+1°C, the indoor fan will run at high speed;

b. When Tpreset+1°C<Tamb.<Tpreset+3°C, the indoor fan will run at middle speed;

c. Tamb. ≥Tpreset+3°C, the indoor fan will run at low speed;

Switches between high speed and middle speed, middle speed and low speed, high speed and low speed, running time of 3.5 minutes must be ensured.

Fan mode is the same as cooling mode.

(7) Buzzer Control

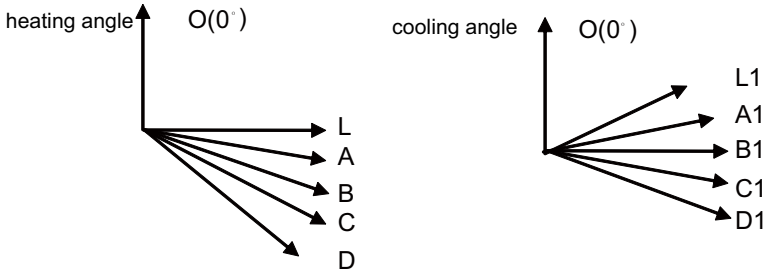
The buzzer will send a “Di” sound when the air conditioner is powered up or received the information sent by the remote control or there is a button input, the single tube cooler doesnt receive the remote control ON signal under the mode of heating mode.

(8) Auto button

If the controller is on, it will stop by pressing the button, and if the controller is off, it will be automatic running state by pressing the button, swing on and light on, and the main unit will run based on the remote control if there is remote control order.

(9) Up-and-Down Swinging Control

When power on, the up-and-down motor will firstly move the air deflector to counter-clockwise, close the air outlet. After starting the machine, if you dont set the swinging function, heating mode and auto-heating mode, the up-and-down air deflector will move to D clockwise; under other modes, the up-and-down air deflector will move to L1. If you set the swinging function when you start the machine, then the wind blade will swing between L and D. The air deflector has 7 swinging states: Location L, Location A, Location B, Location C, Location D, Location L to Location D, stop at any location between L-D (the included angle between L~D is the same). The air deflector will be closed at 0 Location, and the swinging is effectual only on condition that setting the swinging order and the inner fan is running. The indoor fan and compressor may get the power when air deflector is on the default location.



(10) Display

① Operation pattern and mode pattern display

All the display patterns will display for a time when the power on, the operation indication pattern will display in red under standby status. When the machine is start by remote control, the indication pattern will light and display the current operation mode (the mode light includes: Cooling, heating and dehumidify). If you close the light key, all the display patterns will close.

② Double-8 display

According to the different setting of remote control, the nixie light may display the current temperature (the temperature scope is from 16°C to 30°C) and indoor ambient temperature. The set temperature displayed in auto cooling and fan mode is 25°C and the set temperature displayed in auto heating mode is 20°C. Under heating mode, nixie tube displays H1 or heating indicator is off 0.5s and blinks 10s in defrosting.(If you set the fahrenheit temperature display, the nixie light will display according to fahrenheit temperature)

(11) Protection function and failure display

E2: Freeze-proofing protection E4: Exhausting protection E5: Overcurrent protection

E6: Communication failure H4: Overload protection

F1: Indoor ambient sensor start and short circuit (continuously measured failure in 30S)

F2: Indoor evaporator sensor start and short circuit (continuously measured failure in 30S)
F3: Outdoor ambient sensor start and short circuit (continuously measured failure in 30S)
F4: Outdoor condenser sensor start and short circuit (continuously measured failure in 30S, and dont measure within 10 minutes after defrosted)
F5: Outdoor exhausting sensor start and short circuit (continuously measured failure in 30S after the compressor operated 3 minutes)
H3: Overload protection of compressor H5: Module protection
PH: High-voltage protection PL: Low-voltage protection
P1: Nominal cooling and heating P2: Maximum cooling and heating
P3: Medium cooling and heating P0: Minimum cooling and heating

(12) Drying Function

You may start or stop the drying function under the modes of cooling and dehumidify at the starting status (The modes of automatism, heating and air supply do not have drying function). When you start the drying function, after stop the machine by pressing the switch button, you should keep running the inner fans for 2 minutes under low air damper (The swing will operate as the former status within 2 minutes, cooling indicator is on for 0.5s and then off for 10s in drying and other load is stopped), then stop the entire machine; When you stop the drying function, press the switch button will stop the machine directly. When you start the drying function, operating the drying button will stop the inner fans and close the guide louver.

(13) Memory function when interrupting the power supply

Memory content: mode, swing function, light, set temperature and wind speed. After interrupted the power supply, the machine will start when recovering the power according to the memory content automatically. If the last remote control command has not set the timed function, the system will remember the last remote control command and operate according it. If the last remote control command has set timed function and the power supply is interrupted before the timed time, the system will remember the timed function of the last remote control command, the timed time will recounted form power on. If the last remote control command has set timed function, the time is out and the system is start or stop according to the set time when the power supply is interrupted, the system will remember the operation status before the power supply was interrupted, and do not carry out timed action; The timed clock will not remembered.

(14)Electric heating band control of outdoor unit

① Compressor electric heating band control:
a) Start condition: the compressor is in off status and the outdoor ambient temperature≤-5°C.
b) Stop condition: the band is off when either of the below condition is met:
1. The compressor is in on status;
2.The compressor is in off status and the outdoor ambient temperature≥-5°C.
c) When outdoor ambient temperature sensor is in malfunction status, the electric heating band stops operation.
② Condenser electric heating band control:
1.When Toutdoor ambient≤1°C, the electric heating band starts working;
2. When enter defrosting and defrosting is finished, the chassis electric heating band starts working for 3min as the compressor starts. After the compressor starts for 3min and Toutdoor ambient≥3°C, the electric heating band stops operation.
3.When Toutdoor ambient≥3°C, the condenser electric heating band doesn't work.
4.When 1°C<Toutdoor ambient<3°C, the condenser electric heating band keeps the previous status.
When outdoor ambient temperature sensor is in malfunction status, the electric heating band stops operation; the electric heating band can work again after 2min of last stop.

7. Installation Manual

7.1 Notices for Installation

Caution

1.The unit should be installed only by authorized service center according to local or government regulations and in compliance with this manual.

2.Before installing, please contact with local authorized maintenance center. If the unit is not installed by the authorized service center, the malfunction may not be solved due to incovenient contact between the user and the service personnel.

3.When removing the unit to the other place, please firstly contact with the local authorized service center.

4.Warning: Before obtaining access to terminals, all supply circuits must be disconnected.

5.For appliances with type Y attachment, the instructions shall contain the substance of the following. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

6.The appliance must be positioned so that the plug is accessible.

7.The temperature of refrigerant line will be high; please keep the interconnection cable away from the copper tube.

8.The instructions shall state the substance of the following:

This appliance is not intended for use by persons(including children)with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

7.1.1 Installation Site Instructions

Proper installation site is vital for correct and efficient operation of the unit. Avoid the following sites where:

●strong heat sources, vapours, flammable gas or volatile liquids are emitted.

●high-frequency electro-magnetic waves are generated by radio equipment, welders and medical equipment.

●salt-laden air prevails (such as close to coastal areas).

●the air is contaminated with industrial vapours and oils.

●the air contains sulphures gas such as in hot spring zones.

●corrosion or poor air quality exists.

7.1.2 Installation Site of Indoor Unit

1.The air inlet and outlet should be away from the obstructions. Ensure the air can be blown through the whole room.

2.Select a site where the condensate can be easily drained out, and where it is easily connected to outdoor unit.

3.Select a place where it is out of reach of children.

4.Select a place where the wall is strong enough to withstand the full weight and vibration of the unit.

5.Be sure to leave enough space to allow access for routine maintenance. The installation site should be 250cm or more above the floor.

6.Select a place about 1m or more away from TV set or any other electric appliance.

7.Select a place where the filter can be easily taken out.

8.Make sure that the indoor unit is installed in accordance with installation dimension instructions.

9.Do not use the unit in the laundry or by swimming pool etc.

7.1.3 Installation Site of Outdoor Unit

1.Select a site where noise and outflow air emitted by the unit will not annoy neighbors.

2.S elect a site where there is sufficient ventilation.

3.Select a site where there is no obstruction blocking the inlet and outlet.

4.The site should be able to withstand the full weight and vibration.

5.Select a dry place, but do not expose the unit to direct sunlight or strong wind.

6.Make sure that the outdoor unit is installed in accordance with the installation instructions,and is convenient for maintenance and repair.

7.The height difference between indoor and outdoor units is within 10 m, and the length of the connecting tubing does not exceed 15 m.

8.Select a place where it is out of reach of children.

9.Select a place where the unit does not have negative impact on pedestrians or on the city.

7.1.4 Safety Precautions for Electric Appliances

1.A dedicated power supply circuit should be used in accordance with local electrical safety regulations.

2.Don't drag the power cord with excessive force.

3.The unit should be reliably earthed and connected to an exclusive earth device by the professionals.

4.The air switch must have the functions of magnetic tripping and heat tripping to prevent short circuit and overload.

5.The minimum distance between the unit and combustive surface is 1.5m.

6.The appliance shall be installed in accordance with national wiring regulations.

7.An all-pole disconnection switch with a contact separation of at least 3mm in all poles should be connected in fixed wiring.

Note:

●Make sure the live wire, neutral wire and earth wire in the family power socket are properly connected. There should be reliable circuit in the diagram.

●Inadequate or incorrect electrical connections may cause electric shock or fire.

7.1.5 Earthing Requirements

1.Air conditioner is type I electric appliance. Please ensure that the unit is reliably earthed.

2.The yellow-green wire in air conditioner is the earthing wire which can not be used for other purposes. Improper earthing may cause electric shock.

3.The earth resistance should accord to the national criterion.

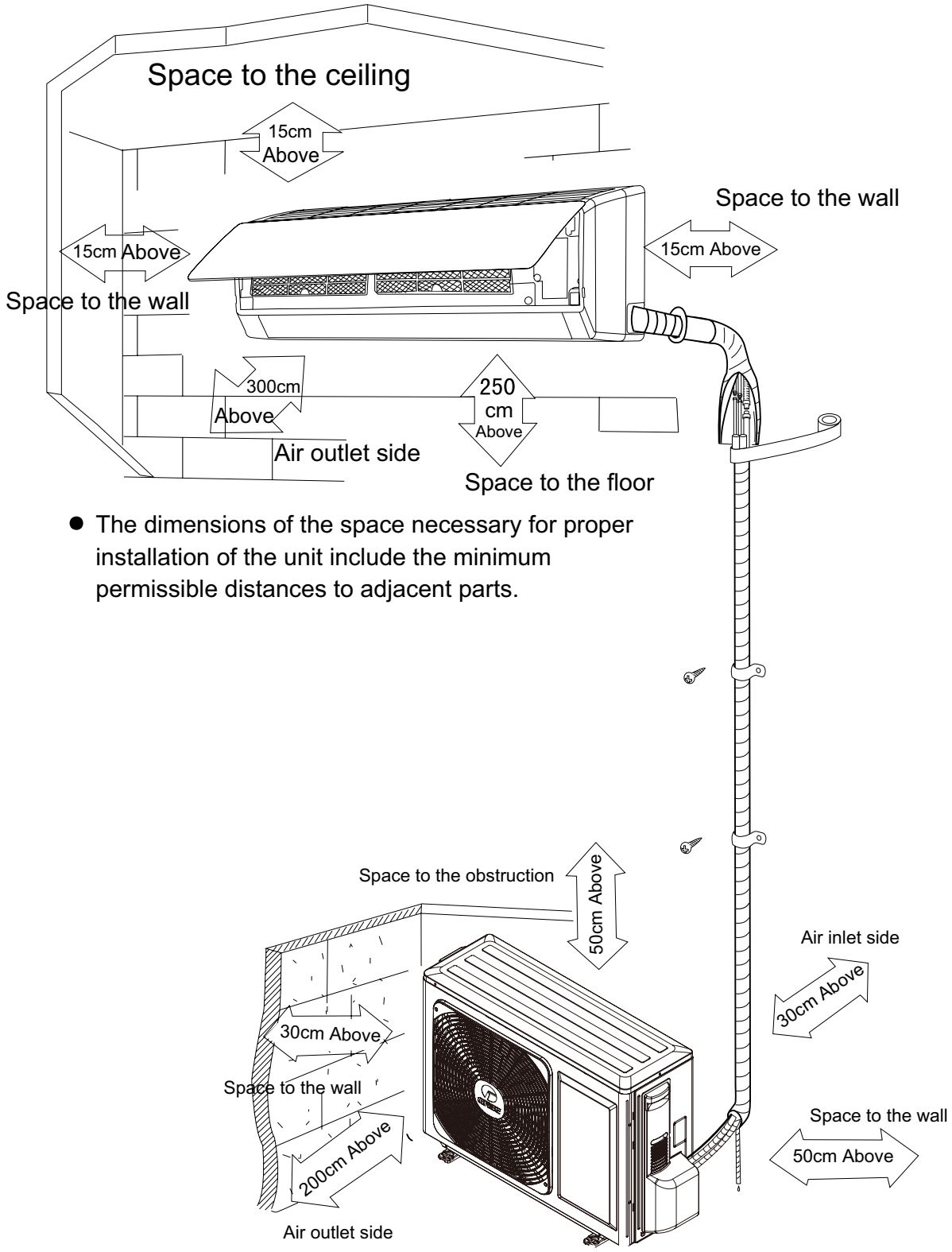
4.The power must have reliable earthing terminal. Please do not connect the earthing wire with the following:

① Water pipe ② Gas pipe ③ Contamination pipe

④ Other place that professional personnel consider is unreliable

5. The model and rated values of fuses should accord with the silk print on fuse cover or related PCB.

7.2 Installation Drawing



- The dimensions of the space necessary for proper installation of the unit include the minimum permissible distances to adjacent parts.

Schematic diagram being reference only (outdoor unit is with variation), please refer to real product for authentic information.

7.3 Install Indoor Unit

7.3.1 Installation of Mounting Plate

1. Mounting plate should be installed horizontally. As the water trays outlet for the indoor unit is two-way type, during installation, the indoor unit should slightly slant to water trays outlet for smooth drainage of condensate.
2.Fix the mounting plate on the wall with screws.
3.Be sure that the mounting plate has been fixed firmly enough to withstand about 60 kg. Meanwhile, the weight should be evenly shared by each screw.

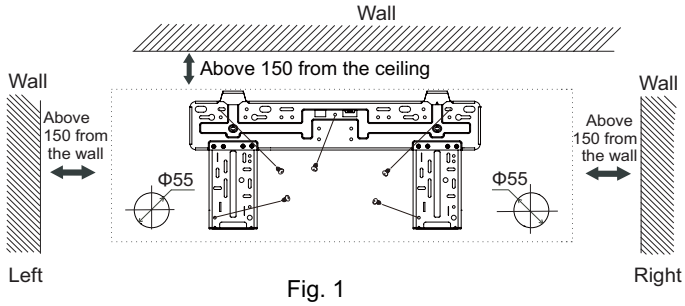
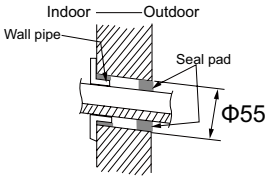


Fig. 1

Unit: mm

7.3.2 Drill Piping Hole

1.Slant the piping hole (Φ55) on the wall slightly downward to the outdoor side.
2.Insert the piping-hole sleeve into the hole to prevent the connection piping and wiring from being damaged when passing through the hole.



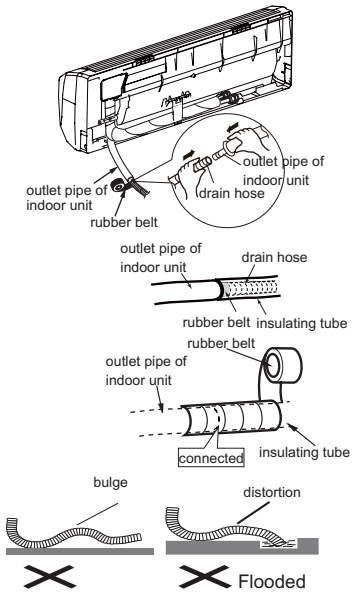
7.3.3 Installation of Drain Hose

1.Connect the drain hose to the outlet pipe of the indoor unit. Bind the joint with rubber belt.

2.Put the drain hose into insulating tube.

3.Wrap the insulating tube with wide rubber belt to prevent the shift of insulating tube. Slant the drain hose downward slightly for smooth drainage of condensate.

Note: The insulating tube should be connected reliably with the sleeve outside the outlet pipe. The drain hose should be slanted downward slightly, without distortion, bulge or fluctuation. Do not put the outlet in the water.



7.3.4 Connecting Indoor and Outdoor Electric Wires

1.Open the front panel.
2.Remove the wiring cover and wire clamp. Make the power connection cord pass through the hole at the back of indoor unit.
3.Connect and fix the power connection cord to the terminal board. (As shown in Fig.2)
4.Fix the power connection cord with wire clamp and reinstall wiring cover.
5.Reinstall the front panel.

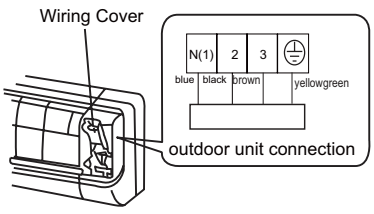


Fig.2

NOTE:

All wires between indoor and outdoor units must be connected by the qualified electric contractor.

- Electric wires must be connected correctly. Improper connection may cause malfunction.
- Tighten the terminal screws securely.
- After tightening the screws, pull the wire slightly to confirm whether its firm or not.
- Make sure that the electric connections are earthed properly to prevent electric shock.
- Make sure that all wiring connections are secure and the cover plates are reinstalled properly. Poor installation may cause fire or electric shock.

7.3.5 Installation of Indoor Unit

●The piping can be output from right, right rear, left or left rear.

1.When routing the piping and wiring from the left or right side of indoor unit, cut off the tailings from the chassis when necessary(As shown in Fig.3)

(1) Cut off tailing 1 when routing the wiring only;

(2) Cut off tailing 1 and tailing 2 when routing both the wiring and piping.

2.Take out the piping from body case; wrap the piping, power cords, drain hose with the tape and then make them pass through the piping hole. (As shown in Fig.4)

3.Hang the mounting slots of the indoor unit on the upper hooks of the mounting plate and check if it is firm enough. (As shown in Fig.5)

4.The installation site should be 250cm or more above the floor.

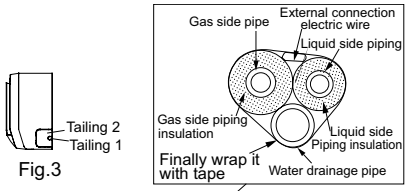


Fig.3

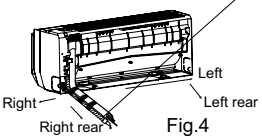


Fig.4

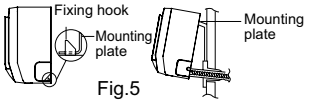


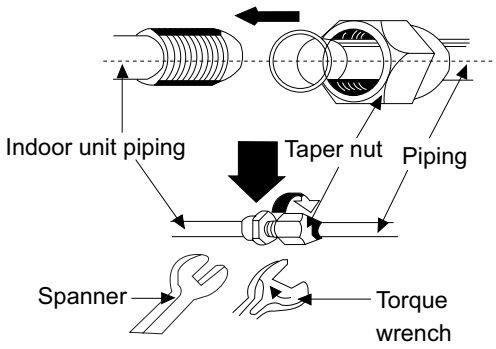
Fig.5

7.3.6 Installation of Connection Pipe

1.Align the center of the pipe flare with the related valve.

2.Screw in the flare nut by hand and then tighten the nut with spanner and torque wrench by referring to the following:

Hex nut diameter	Tightening torque(N·m)
Φ6	30 ～ 40
Φ9.52	15 ～ 20
Φ12	45 ～ 55
Φ16	60 ～ 65
Φ19	70 ～ 75



NOTE: Connect the connection pipe to indoor unit at first and then to outdoor unit. Handle piping bending with care. Do not damage the connection pipe. Ensure that the joint nut is tightened firmly, otherwise, it may cause leakage.

7.4 Install Outdoor Unit

7.4.1 Electric Wiring

1.Remove the handle on the right side plate of outdoor unit.

2.Take off wire clamp. Connect and fix the power connection cord to the terminal board. Wiring should fit that of indoor unit.

3.Fix the power connection cord with wire clamp.

4.Confirm if the wire has been fixed properly.

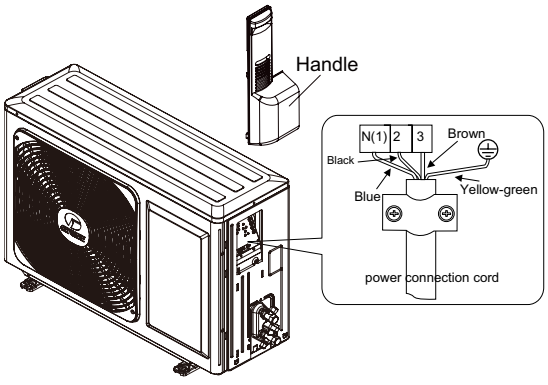
5.Reinstall the handle.

NOTE:

●Incorrect wiring may cause malfunction of spare part.

●After the wire has been fixed, ensure there is free space between the connection and fixing places on the lead wire.

Schematic diagram being reference only, please refer to real product for authentic information.



7.4.2 Air Purging and Leakage Test

1.Connect charging hose of manifold valve to charge end of low pressure valve (both high/low pressure valves must be tightly shut).
2. Connect joint of charging hose to vacuum pump.
3. Fully open the handle of Lo manifold valve.
4. Open the vacuum pump for vacuumization. At the beginning, slightly loosen joint nut of low pressure valve to check if there is air coming inside (If noise of vacuum pump has been changed, the reading of multimeter is 0). Then tighten the nut.
5.Keep vacuuming for more than 15mins and make sure the reading of multi-meter is $-1.0X10^5$ pa(-76cmHg).
6. Fully open high/low pressure valves.
7. Remove charging hose from charging end of low pressure valve.
8. Tighten lid of low pressure valve. (As shown in Fig.6)

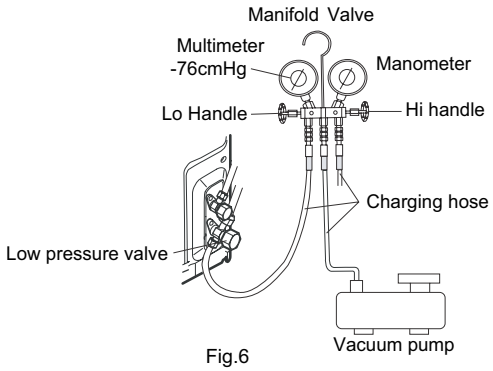
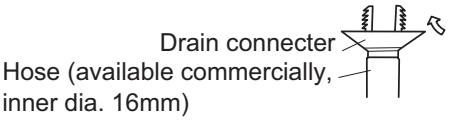


Fig.6

7.4.3 Outdoor Condensate Drainage (only for heat pump unit)

During heating operation, the condensate and defrosting water should be drained out reliably through the drain hose. Install the outdoor drain connector in a Φ25 hole on the base plate and attach the drain hose to the connector so that the waste water formed in the outdoor unit can be drained out .The hole diameter 25 must be plugged. Whether to plug other holes will be determined by the dealers according to actual conditions.

Bottom frame



7.5 Check after Installation and Operation Test

7.5.1 Check after Installation

Items to be checked	Possible malfunction
Has it been fixed firmly?	The unit may drop, shake or emit noise.
Have you done the refrigerant leakage test?	It may cause insufficient cooling(heating) capacity
Is heat insulation sufficient?	It may cause condensation and dripping.
Is water drainage satisfactory?	It may cause condensation and dripping.
Is the voltage in accordance with the rated voltage marked on the nameplate?	It may cause electric malfunctionor damage the product.
Is the electric wiring and piping connection installed correctly and securely?	It may cause electric malfunction or damage the part.
Has the unit been connected to a secure earth connection?	It may cause electrical leakage.
Is the power cord specified?	It may cause electric malfunctionor damage the part.
Are the inlet and outlet openings blocked?	It may cause insufficient cooling(heating) capacity.
Is the length of connection pipes and refrigerant capacity been recorded?	The refrigerant capacity is not accurate.

7.5.2 Operation Test

1.Before Operation Test
(1)Do not switch on power before installation is finished completely.
(2)Electric wiring must be connected correctly and securely.
(3)Cut-off valves of the connection pipes should be opened.
(4)All the impurities such as scraps and thrums must be cleared from the unit.
2.Operation Test Method
(1)Switch on power and press "ON/OFF"button on the remote controller to start operation.
(2)Press MODE button to select the COOL, HEAT (Not available for cooling only unit), FAN to check whether the operation is normal or not.

7.6 Installation and Maintenance of Healthy Filter

7.6.1 Installation of Healthy Filter

1.Lift up the front panel from its two ends, as shown by the arrow direction, and then remove the air filter. (As shown in fig. a)

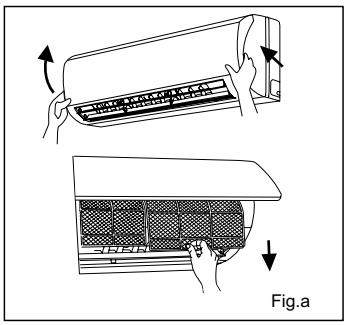


Fig.a

2.Attach the healthy filter onto the air filter. (As shown in fig. b)

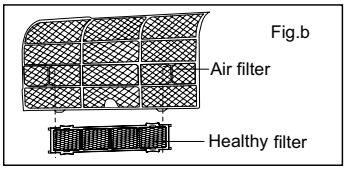


Fig.b

3.Install the air filter properly along the arrow direction in Fig.c, and then close the panel .

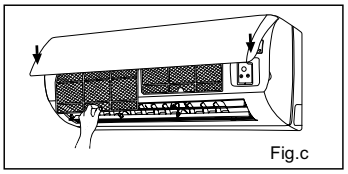


Fig.c

7.6.2 Cleaning and Maintenance

Remove the healthy filter and reinstall it after cleaning according to the installation instruction. Don't use brush or hard things to clean the filter. After cleaning, be sure to dry it in the shade.

7.6.3 Service Life

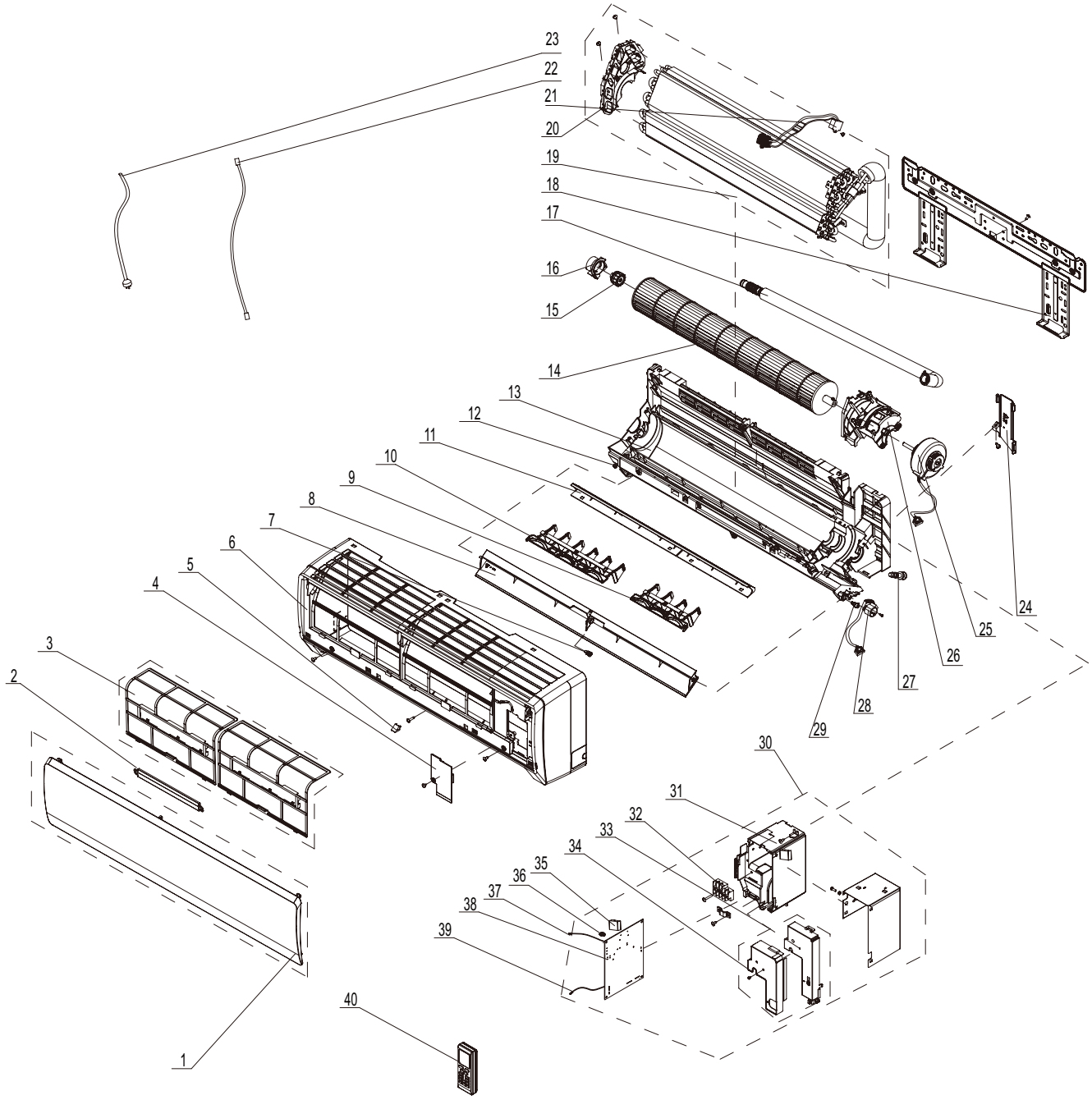
The general serive life for the healthy filter is about one year under normal condition. As for silver ion filter, it is invalid when its surface becomes black (green).

●This supplementary instruction is provided for reference to the unit with healthy filter. If the graphics provided herein is different from the actual product, please refer to the atual product. The quantity of healthy filters is based on the actual delivery.

8. Exploded Views and Parts List

8.1 Indoor Unit

GWH09MB-K3DNA2K/I, GWH12MB-K3DNA2K/I, GWH09MB-K3DNA3K/I, GWH12MB-K3DNA3K/I



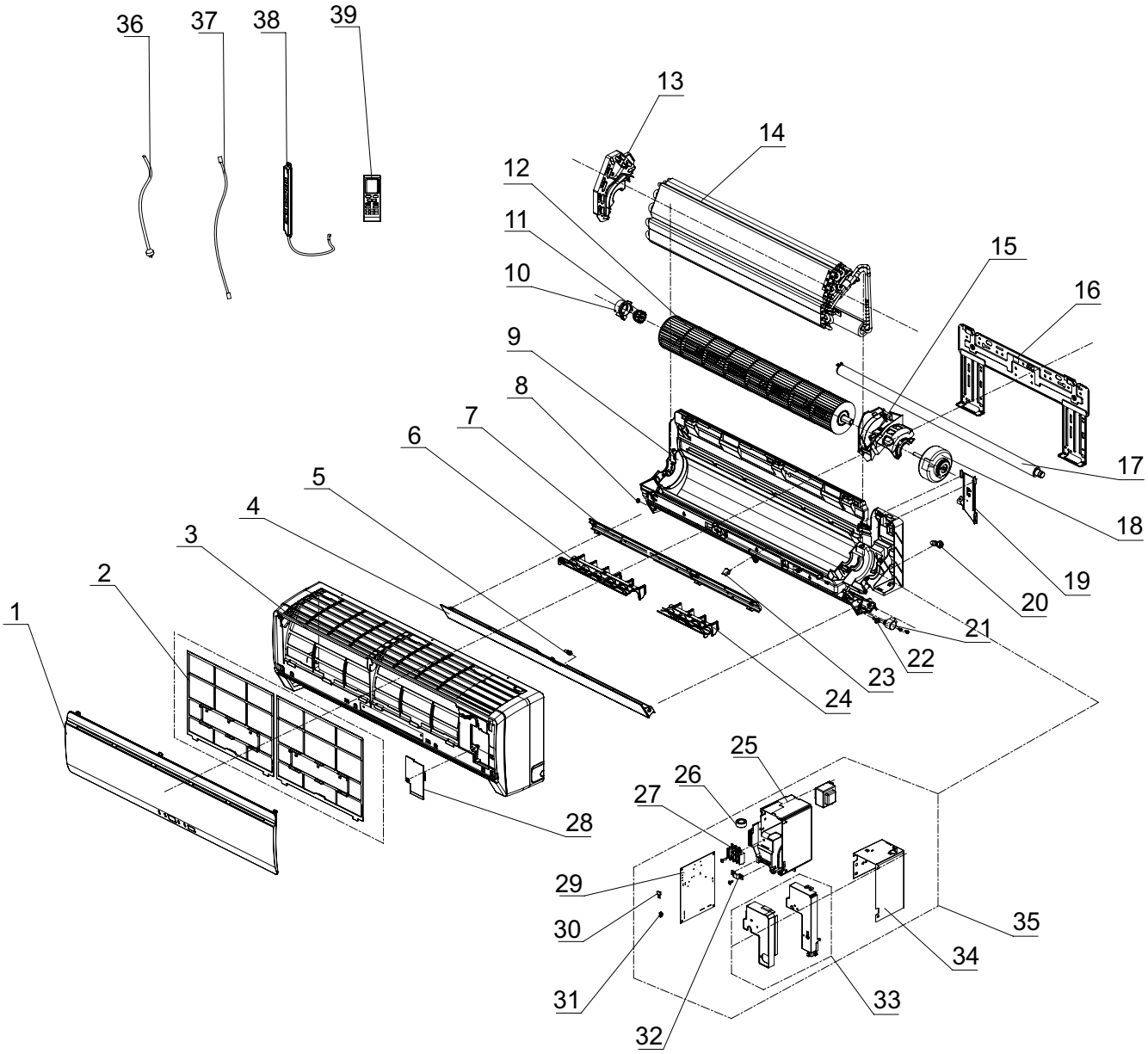
NO.	Description	Part Code		Qty
		GWH09MB-K3DNA3K/I	GWH12MB-K3DNA3K/I	
	Product Code	CB171N07600	CB171N07700	
1	Front Panel	20012548	20012548	1
2	Display Board	30565007	30565007	1
3	Filter Sub-Assy	1112220403	1112220403	2
4	Electric Box Cover2	20122075	20122075	1
5	Screw Cover	24252016	24252016	1
6	Front Case Sub-Assy	20012139	20012139	1
7	Axile Bush	10542036	10542036	1
8	Guide Louver	10512157	10512157	1
9	Air Louver 1	10512156	10512156	1
10	Air Louver 2	10512155	10512155	1
11	Helicoid tongue	26112163	26112163	1
12	Left Axile Bush	10512037	10512037	1
13	Rear Case assy	2220210301	2220210301	1
14	Cross Flow Fan	10352017	10352017	1
15	O-Gasket sub-assy of Bearing	76512051	76512051	1
16	Ring of Bearing	26152022	26152022	1
17	Drainage hose	0523001401	0523001401	1
18	Wall Mounting Frame	01252021	01252021	1
19	Evaporator Assy	01002424	01002953	1
20	Evaporator Support	24212091	24212091	1
21	Cold Plasma Generator Sub-assy	/	/	/
22	Connecting Cable	400205236	400205236	0
23	Power Cord	400204643	400204643	1
24	Pipe Clamp	26112164	26112164	1
25	Fan Motor	150120874	150120874	1
26	Motor Press Plate	26112161	26112161	1
27	Rubber Plug (Water Tray)	76712012	76712012	1
28	Step Motor	1521212901	1521212901	1
29	Crank	10582070	10582070	1
30	Electric Box Assy	20402397	20402396	1
31	Electric Box	2011208201	2011208201	1
32	Terminal Board	42011233	42011233	1
33	Shield cover of Electric Box sub-assy	01592073	01592073	1
34	Electric Box Cover1	22242135	22242135	1
35	Capacitor CBB61	33010002	33010002	1
36	Jumper	4202300102	4202300104	1
37	Ambient Temperature Sensor	390000451	390000451	1
38	Main Board	30148783	30148783	1
39	Temperature Sensor	390000591	390000591	1
40	Remote Controller	305100413	305100413	1

The data above are subject to change without notice.

NO.	Description	Part Code		Qty
		GWH09MB-K3DNA2K/I	GWH12MB-K3DNA2K/I	
	Product Code	CB181N05700	CB181N05800	
1	Front Panel	20022148	20022148	1
2	Display Board	30565054	30565054	1
3	Filter Sub-Assy	1112220403	1112220403	2
4	Electric Box Cover2	20122075	20122075	1
5	Screw Cover	24252016	24252016	1
6	Front Case Sub-Assy	20012139	20012139	1
7	Axile Bush	10542036	10542036	1
8	Guide Louver	10512157	10512157	1
9	Air Louver 1	10512156	10512156	1
10	Air Louver 2	10512155	10512155	1
11	Helicoid tongue	26112163	26112163	1
12	Left Axile Bush	10512037	10512037	1
13	Rear Case assy	2220210301	2220210301	1
14	Cross Flow Fan	10352017	10352017	1
15	O-Gasket sub-assy of Bearing	76512051	76512051	1
16	Ring of Bearing	26152022	26152022	1
17	Drainage hose	0523001401	0523001401	1
18	Wall Mounting Frame	01252021	01252021	1
19	Evaporator Assy	01002424	01002953	1
20	Evaporator Support	24212091	24212091	1
21	Cold Plasma Generator Sub-assy	/	/	/
22	Connecting Cable	400205235	400205235	0
23	Power Cord	4002046410	4002046410	1
24	Pipe Clamp	26112164	26112164	1
25	Fan Motor	150120874	150120874	1
26	Motor Press Plate	26112161	26112161	1
27	Rubber Plug (Water Tray)	76712012	76712012	1
28	Step Motor	1521212901	1521212901	1
29	Crank	10582070	10582070	1
30	Electric Box Assy	20402761	20402761	1
31	Electric Box	2011208201	2011208201	1
32	Terminal Board	42011233	42011233	1
33	Shield cover of Electric Box sub-assy	01592073	01592073	1
34	Electric Box Cover1	22242135	22242135	1
35	Capacitor CBB61	33010002	33010002	1
36	Jumper	4202300102	4202300104	1
37	Ambient Temperature Sensor	390000451	390000451	1
38	Main Board	30148783	30148783	1
39	Temperature Sensor	390000591	390000591	1
40	Remote Controller	305100413	305100413	1

The data above are subject to change without notice.

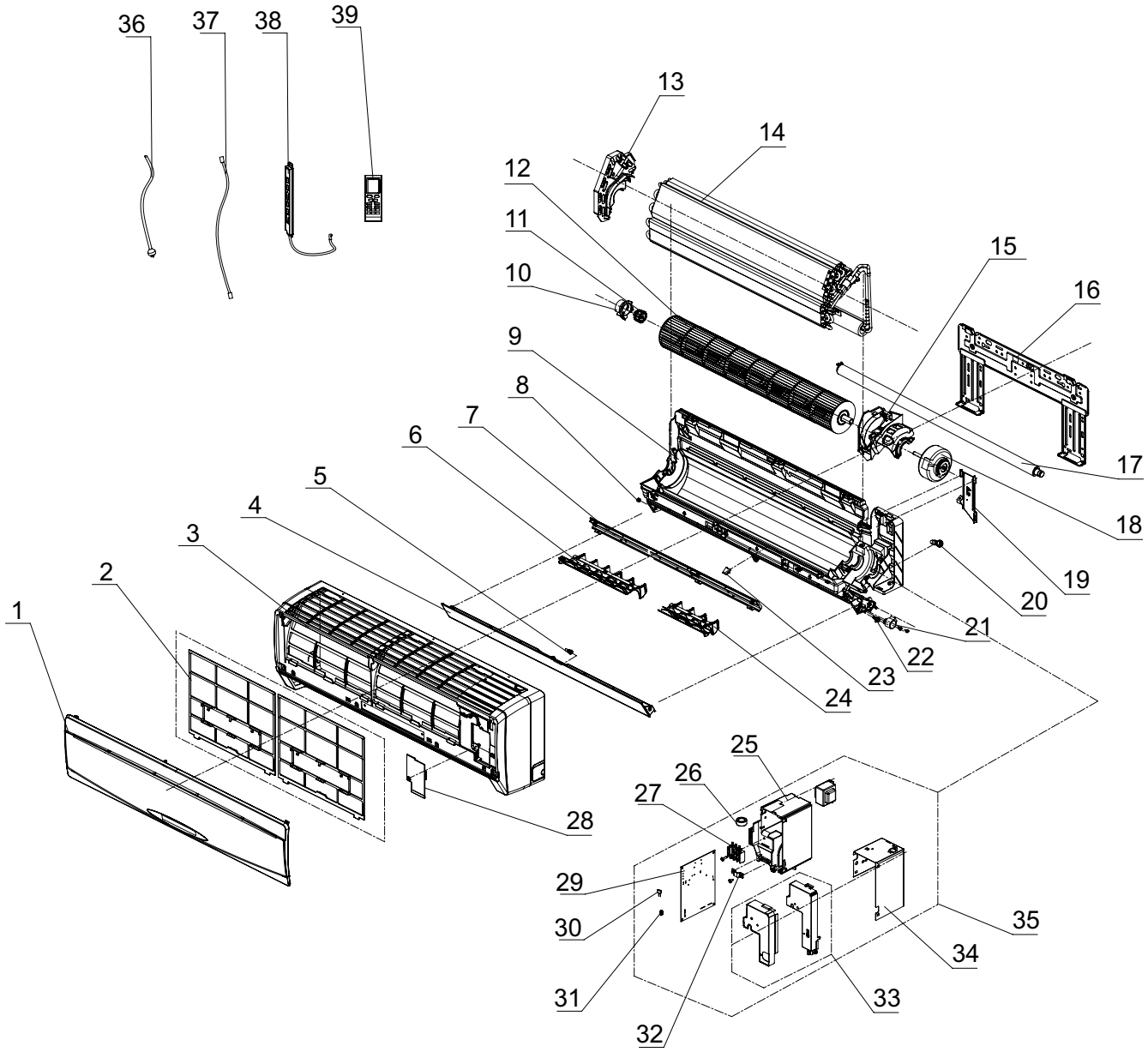
GWH09MB-K3DNC9K/I, GWH12MB-K3DNC9K/I



NO.	Description	Part Code		Qty
		GWH09MB-K3DNC9K/I	GWH12MB-K3DNC9K/I	
	Product Code	CB145N03600	CB145N03700	
1	Front Panel Sub-Assy	20012743	20012743	1
2	Filter Sub-Assy	1112220403	1112220403	2
3	Front Case Sub-assy	20012139	20012139	1
4	Guide Louver	10512157	10512157	1
5	Axile Bush	10542036	10542036	1
6	Air Louver 2	10512155	10512155	1
7	Helicoid Tongue	26112163	26112163	1
8	Left Axile Bush	10512037	10512037	1
9	Rear Case assy	2220210302	2220210302	1
10	Ring of Bearing	26152022	26152022	1
11	O-Gasket sub-assy of Bearing	76512051	76512051	1
12	Cross Flow Fan	10352017	10352017	1
13	Evaporator Support	24212091	24212091	1
14	Evaporator Assy	01002424	01002953	1
15	Motor Press Plate	26112161	26112161	1
16	Wall Mounting Frame	01252021	01252021	1
17	Drainage Hose	0523001401	0523001401	1
18	Fan Motor	150120874	150120874	1
19	Connecting pipe clamp	26112164	26112164	1
20	Rubber Plug (Water Tray)	76712012	76712012	1
21	Stepping Motor	1521212901	1521212901	1
22	Crank	10582070	10582070	1
23	Screw Cover	24252016	24252016	1
24	Air Louver 1	10512156	10512156	1
25	Electric Box	2011208201	2011208201	1
26	Magnetic Ring	49010104	49010104	1
27	Terminal Board	42011233	42011233	1
28	Electric Box Cover2	20122075	20122075	1
29	Main Board	30148783	30148783	1
30	Capacitor CBB61	33010002	33010002	1
31	Jumper	4202300102	4202300102	1
32	Wire Clamp	71010003	71010003	1
33	Shield Cover of Electric Box Sub-assy	01592073	01592073	1
34	Lower Shield Sub-assy of Electric Box	01592072	01592072	1
35	Electric Box Assy	2040268702	2040268802	1
36	Power Cord	4002046410	4002046410	1
37	Connecting Cable	400205235	400205235	0
38	Display Board	30565056	30565056	1
39	Remote Controller	305100413	305100413	1

The data above are subject to change without notice.

GWH09MB-K3DNE1K/I, GWH12MB-K3DNE1K/I

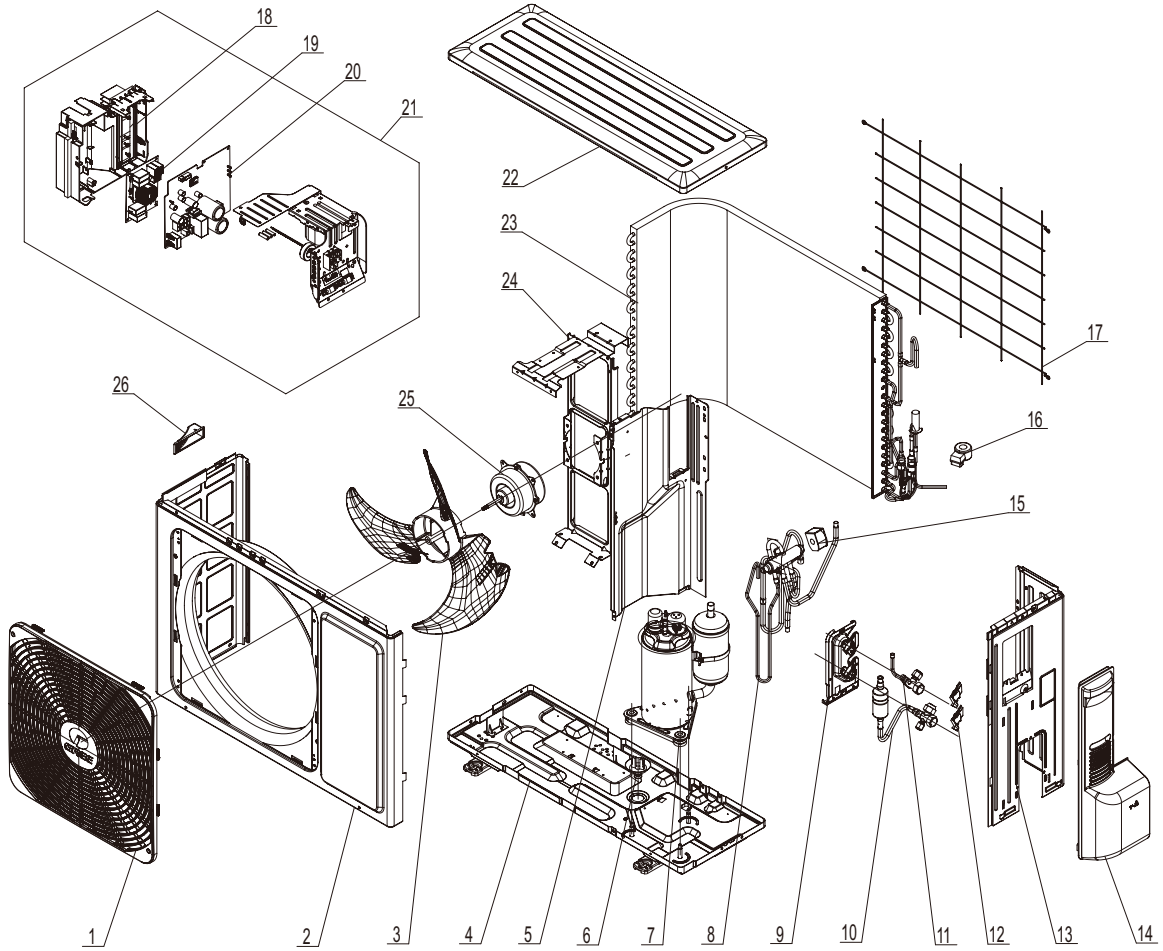


NO.	Description	Part Code		Qty
		GWH09MB-K3DNE1K/I	GWH12MB-K3DNE1K/I	
	Product Code	CB143N01300	CB143N01400	
1	Front Panel Assy	20012802	20012802	1
2	Filter Sub-Assy	1112220403	1112220403	2
3	Front Case Sub-assy	2001213919	2001213919	1
4	Guide Louver	10512157	10512157	1
5	Axile Bush	10542036	10542036	1
6	Air Louver 2	10512155	10512155	1
7	Helicoid Tongue	26112163	26112163	1
8	Left Axile Bush	10512037	10512037	1
9	Rear Case assy	2220210302	2220210302	1
10	Ring of Bearing	26152022	26152022	1
11	O-Gasket sub-assy of Bearing	76512051	76512051	1
12	Cross Flow Fan	10352017	10352017	1
13	Evaporator Support	24212091	24212091	1
14	Evaporator Assy	01002424	01002953	1
15	Motor Press Plate	26112161	26112161	1
16	Wall Mounting Frame	01252021	01252021	1
17	Drainage Hose	0523001401	0523001401	1
18	Fan Motor	150120874	150120874	1
19	Connecting pipe clamp	26112164	26112164	1
20	Rubber Plug (Water Tray)	76712012	76712012	1
21	Stepping Motor	1521212901	1521212901	1
22	Crank	10582070	10582070	1
23	Screw Cover	24252016	24252016	1
24	Air Louver 1	10512156	10512156	1
25	Electric Box	2011208201	2011208201	1
26	Magnetic Ring	49010104	49010104	1
27	Terminal Board	42011233	42011233	1
28	Electric Box Cover2	20122075	20122075	1
29	Main Board	30148783	30148783	1
30	Capacitor CBB61	33010002	33010002	1
31	Jumper	4202300102	4202300102	1
32	Wire Clamp	71010003	71010003	1
33	Shield Cover of Electric Box Sub-assy	01592073	01592073	1
34	Lower Shield Sub-assy of Electric Box	01592072	01592072	1
35	Electric Box Assy	2040268701	2040268801	1
36	Power Cord	4002046410	4002046410	1
37	Connecting Cable	400205235	400205235	0
38	Display Board	30565007	30565007	1
39	Remote Controller	305100413	305100413	1

The data above are subject to change without notice.

8.2 Outdoor Unit

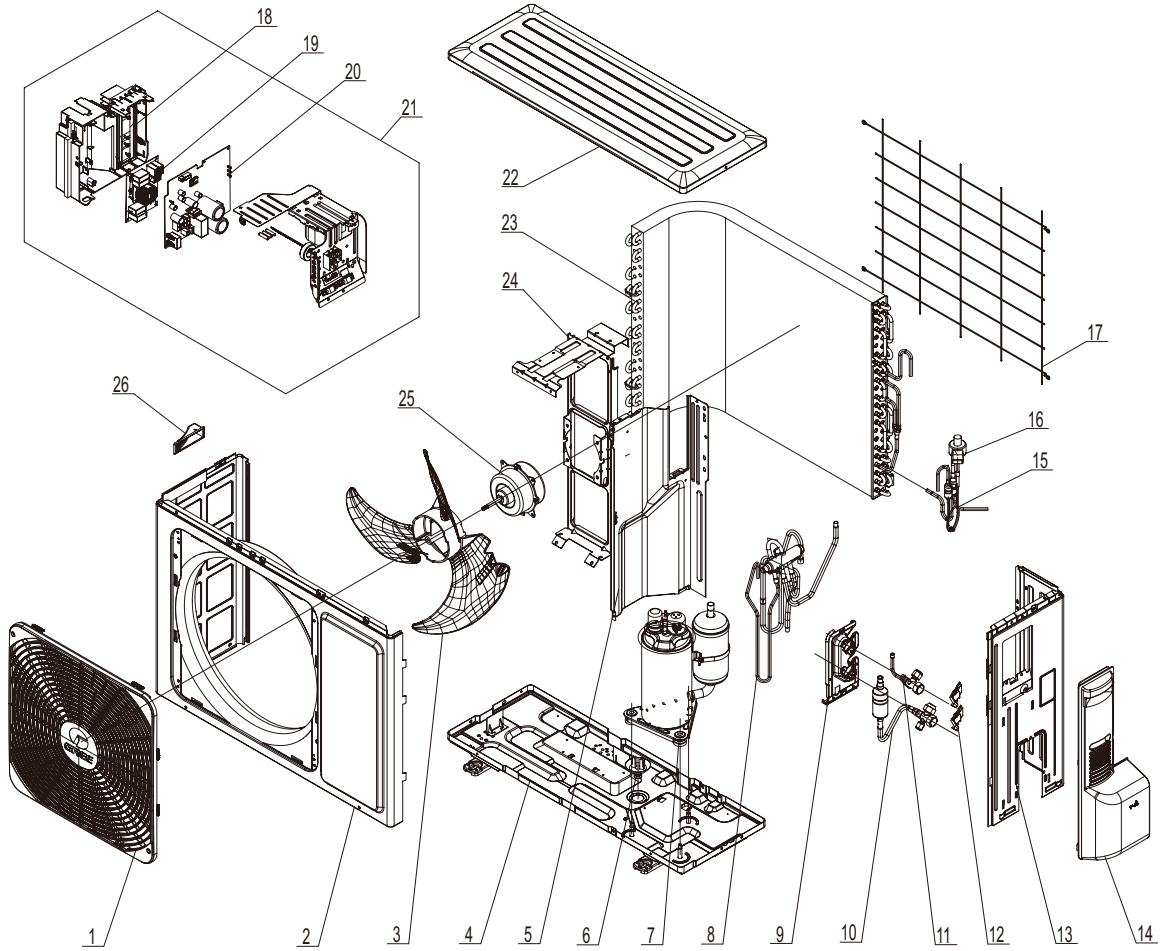
GWH09MB-K3DNA3K/O



NO.	Description	Part Code	Qty
		GWH09MB-K3DNA3K/O	
	Product Code	CB171W07600	
1	Front Grill	22413027	1
2	Cabinet Sub-assy	01433062	1
3	Axial Flow Fan	10333004	1
4	Chassis Sub-assy	02803037P	1
5	Clapboard Sub-Assy	01233385	1
6	Drainage Connecter	06123401	1
7	Compressor and Fittings	00103896G	1
8	4-Way Valve Assy	03073151	1
9	Valve Support	0171314201P	1
10	Cut off Valve Assy	0713347401	1
11	Valve	07100003	1
12	Valve Support Block	26113017	2
13	Right Side Plate Sub-Assy	0130317801	1
14	Big Handle	26233433	1
15	Magnet Coil	4300040050	1
16	Magnet Coil	4300876701	1
17	Rear Grill	01473009	1
18	Electric Box	20113014	1
19	Filter Board	30033082	1
20	Main Board	30148803	1
21	Electric Box Assy	02613539	1
22	Top Cover Sub-Assy	01253073	1
23	Condenser Assy	01163812	1
24	Motor Support	01703104	1
25	Fan Motor	1501308502	1
26	Small Handle	26233100	1

The data above are subject to change without notice.

GWH12MB-K3DNA3K/O



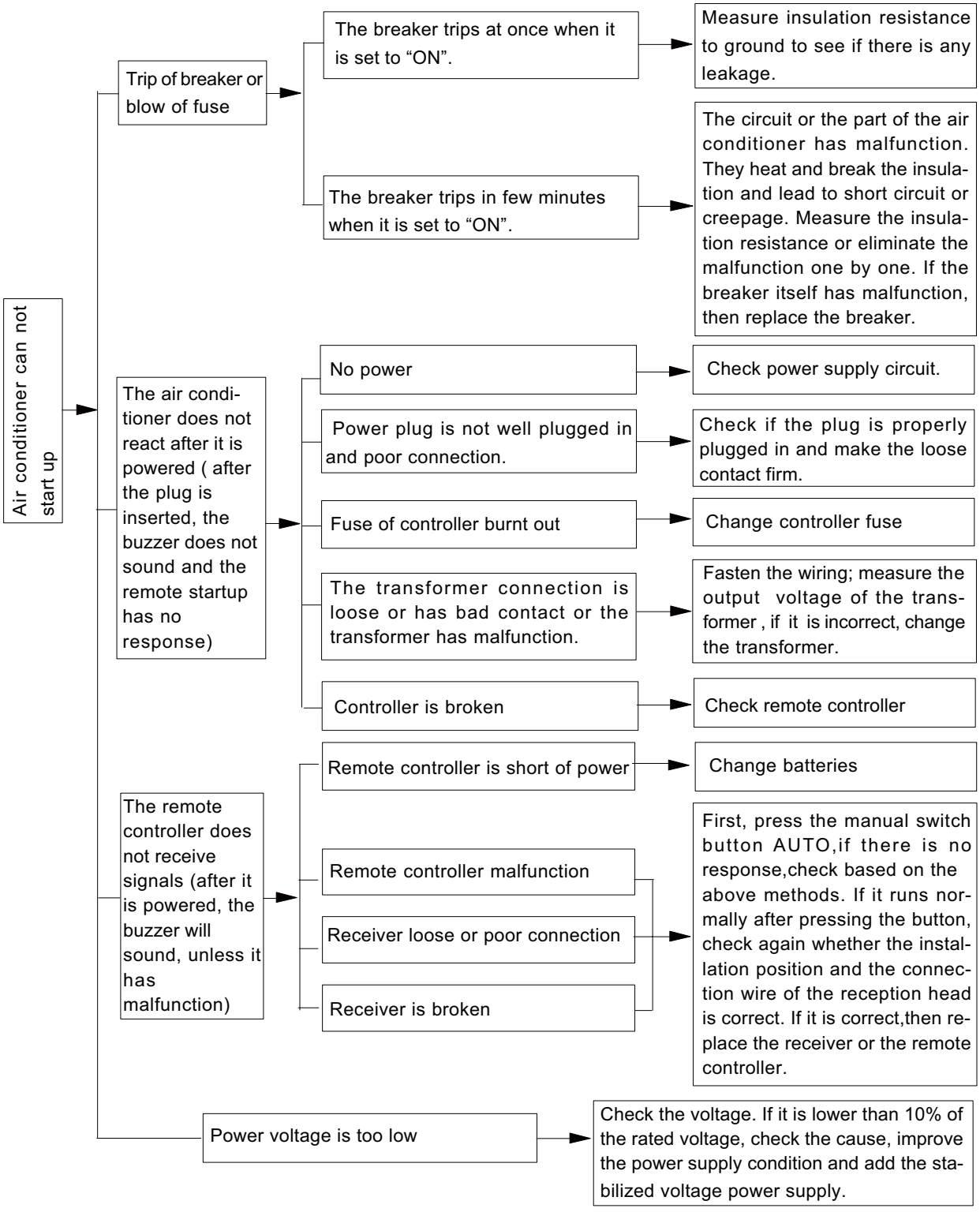
NO.	Description	Part Code	Qty
		GWH12MB-K3DNA3K/O	
	Product Code	CB171W07700	
1	Front Grill	22413027	1
2	Cabinet Sub-assy	01433062	1
3	Axial Flow Fan	10333004	1
4	Chassis Sub-assy	02803151P	1
5	Clapboard Sub-Assy	01233385	1
6	Drainage Connecter	06123401	1
7	Compressor and Fittings	00103896G	1
8	4-Way Valve Assy	03073151	1
9	Valve Support	0171314201P	1
10	Cut off Valve Assy	07133804	1
11	Valve	07100003	1
12	Valve Support Block	26113017	2
13	Right Side Plate Sub-Assy	0130317801	1
14	Big Handle	26233433	1
15	Electric Expansion Valve Sub-Assy	07133830	1
16	Magnet Coil	4300876701	1
17	Rear Grill	01473009	1
18	Electric Box	20113014	1
19	Filter Board	30033082	1
20	Main Board	30148803	1
21	Electric Box Assy	02613540	1
22	Top Cover Sub-Assy	01253073	1
23	Condenser Assy	01163924	1
24	Motor Support	0170310401	1
25	Fan Motor	1501308502	1
26	Small Handle	26233100	1

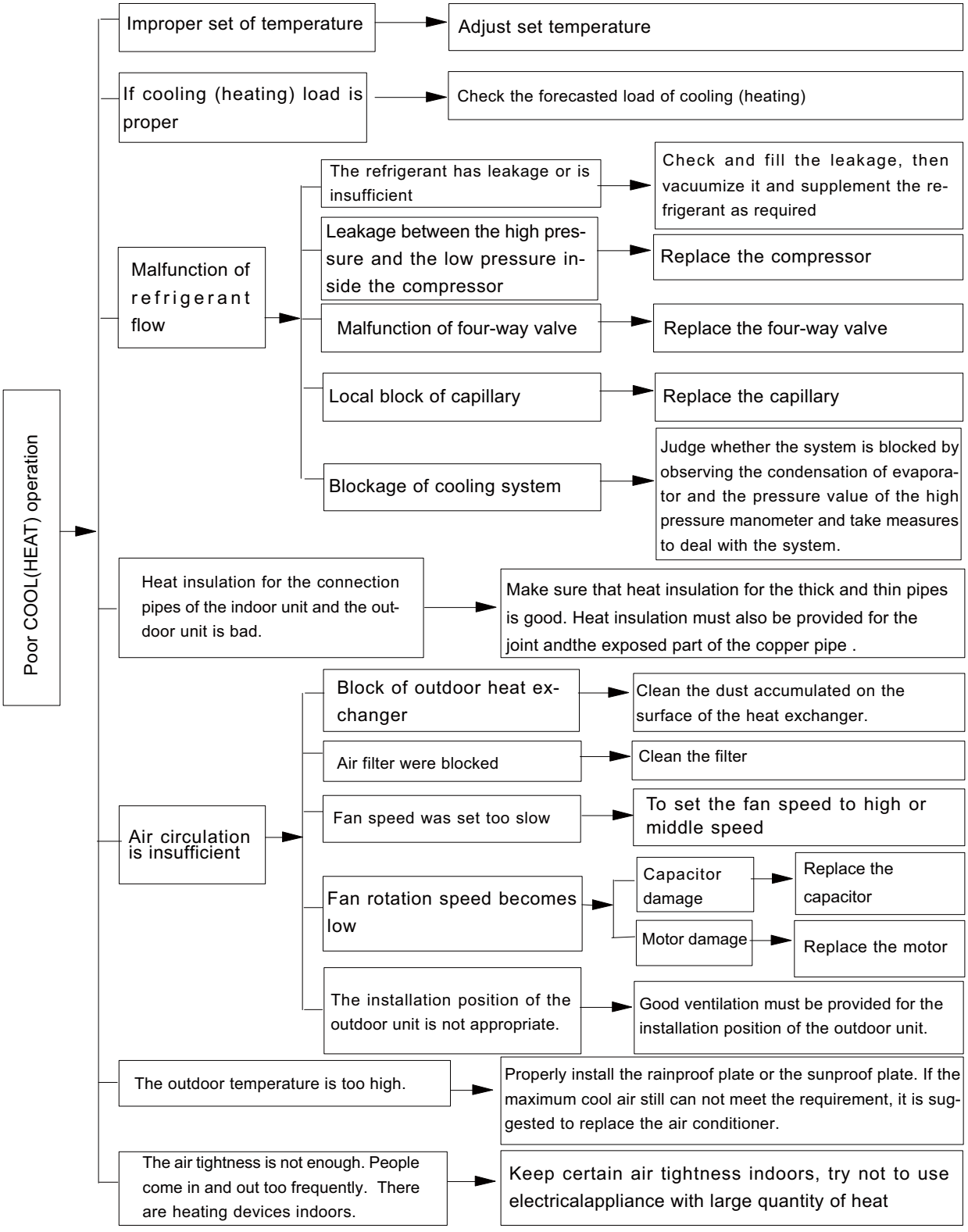
The data above are subject to change without notice.

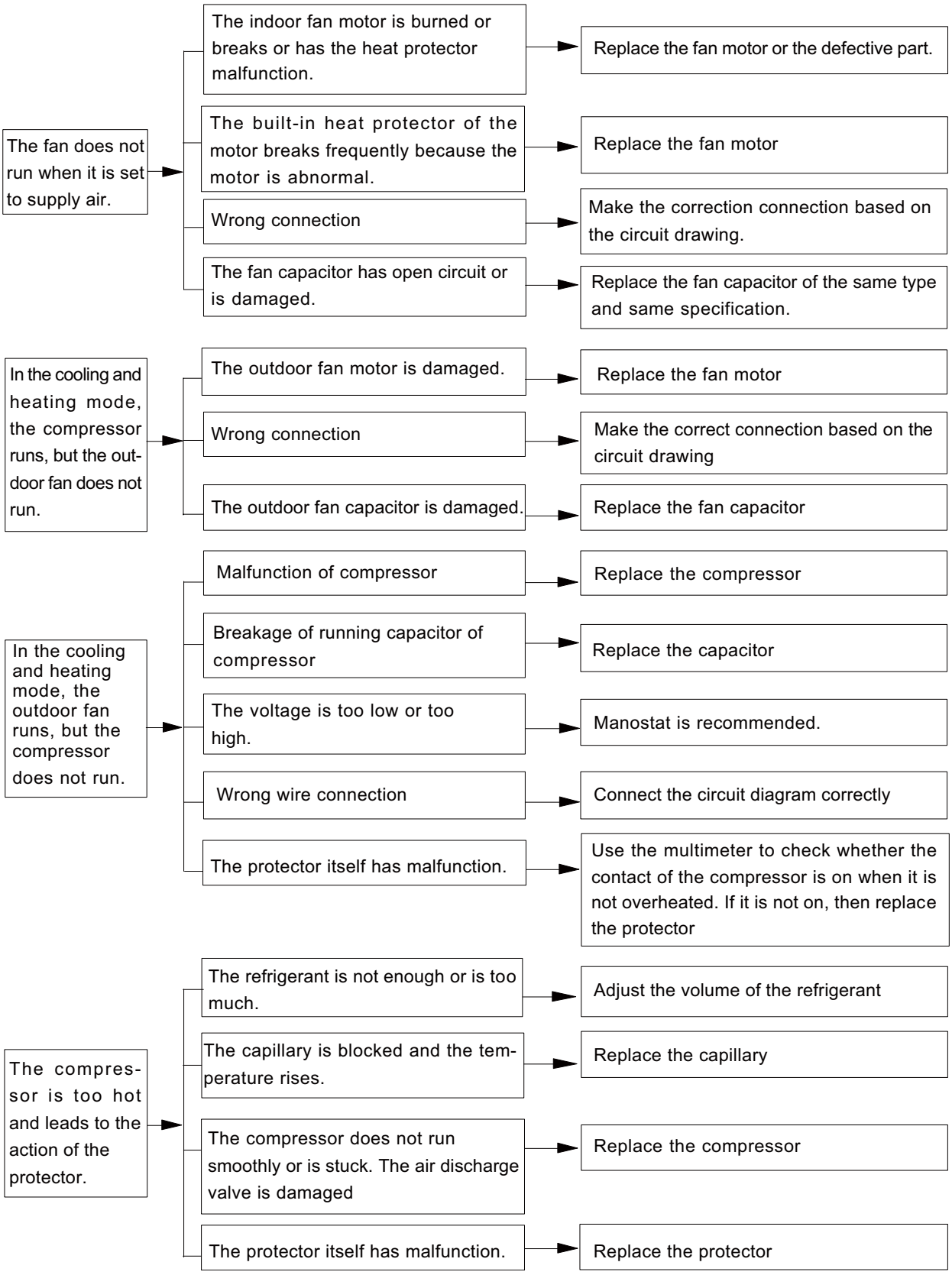
9. Troubleshooting

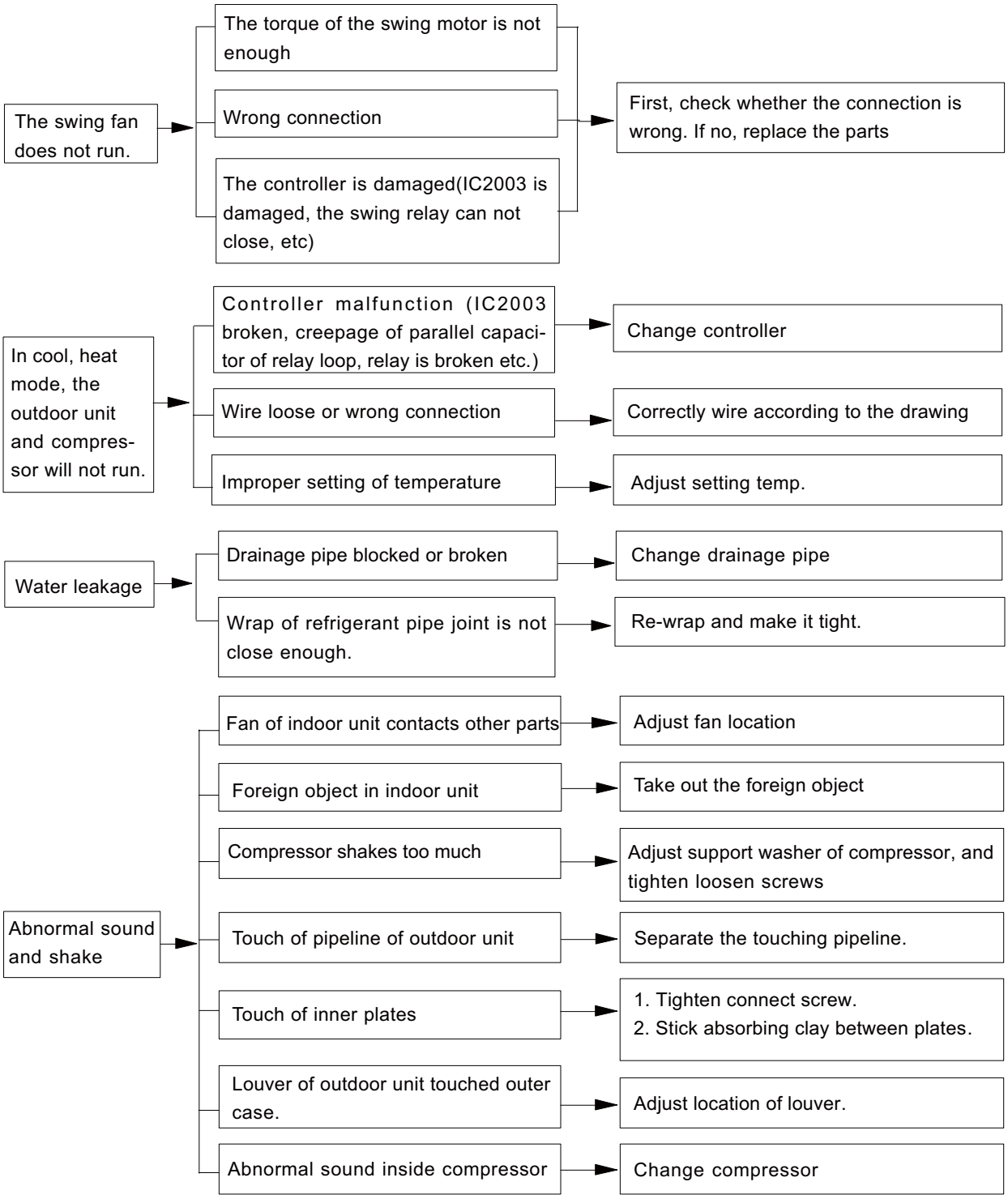
9.1 Malfunction Analysis

Note: When replacing the controller, make sure insert the wire jumper into the new controller, otherwise the unit will display C5


Air conditioner can not start up
Trip of breaker or blow of fuse
The breaker trips at once when it is set to “ON”.
Measure insulation resistance to ground to see if there is any leakage.
The breaker trips in few minutes when it is set to “ON”.
The circuit or the part of the air conditioner has malfunction. They heat and break the insulation and lead to short circuit or creepage. Measure the insulation resistance or eliminate the malfunction one by one. If the breaker itself has malfunction, then replace the breaker.
The air conditioner does not react after it is powered (after the plug is inserted, the buzzer does not sound and the remote startup has no response)
No power
Check power supply circuit.
Power plug is not well plugged in and poor connection.
Check if the plug is properly plugged in and make the loose contact firm.
Fuse of controller burnt out
Change controller fuse
The transformer connection is loose or has bad contact or the transformer has malfunction.
Fasten the wiring; measure the output voltage of the transformer , if it is incorrect, change the transformer.
Controller is broken
Check remote controller
The remote controller does not receive signals (after it is powered, the buzzer will sound, unless it has malfunction)
Remote controller is short of power
Change batteries
Remote controller malfunction
Receiver loose or poor connection
Receiver is broken
First, press the manual switch button AUTO,if there is no response,check based on the above methods. If it runs normally after pressing the button, check again whether the installation position and the connection wire of the reception head is correct. If it is correct,then replace the receiver or the remote controller.
Power voltage is too low
Check the voltage. If it is lower than 10% of the rated voltage, check the cause, improve the power supply condition and add the stabilized voltage power supply.


Poor COOL(HEAT) operation
Improper set of temperature
Adjust set temperature
If cooling (heating) load is proper
Check the forecasted load of cooling (heating)
Malfunction of refrigerant flow
The refrigerant has leakage or is insufficient
Check and fill the leakage, then vacuumize it and supplement the refrigerant as required
Leakage between the high pressure and the low pressure inside the compressor
Replace the compressor
Malfunction of four-way valve
Replace the four-way valve
Local block of capillary
Replace the capillary
Blockage of cooling system
Judge whether the system is blocked by observing the condensation of evaporator and the pressure value of the high pressure manometer and take measures to deal with the system.
Heat insulation for the connection pipes of the indoor unit and the outdoor unit is bad.
Make sure that heat insulation for the thick and thin pipes is good. Heat insulation must also be provided for the joint andthe exposed part of the copper pipe .
Air circulation is insufficient
Block of outdoor heat exchanger
Clean the dust accumulated on the surface of the heat exchanger.
Air filter were blocked
Clean the filter
Fan speed was set too slow
To set the fan speed to high or middle speed
Fan rotation speed becomes low
Capacitor damage
Replace the capacitor
Motor damage
Replace the motor
The installation position of the outdoor unit is not appropriate.
Good ventilation must be provided for the installation position of the outdoor unit.
The outdoor temperature is too high.
Properly install the rainproof plate or the sunproof plate. If the maximum cool air still can not meet the requirement, it is suggested to replace the air conditioner.
The air tightness is not enough. People come in and out too frequently. There are heating devices indoors.
Keep certain air tightness indoors, try not to use electricalappliance with large quantity of heat


The fan does not run when it is set to supply air.
The indoor fan motor is burned or breaks or has the heat protector malfunction.
Replace the fan motor or the defective part.
The built-in heat protector of the motor breaks frequently because the motor is abnormal.
Replace the fan motor
Wrong connection
Make the correction connection based on the circuit drawing.
The fan capacitor has open circuit or is damaged.
Replace the fan capacitor of the same type and same specification.
In the cooling and heating mode, the compressor runs, but the outdoor fan does not run.
The outdoor fan motor is damaged.
Replace the fan motor
Wrong connection
Make the correct connection based on the circuit drawing
The outdoor fan capacitor is damaged.
Replace the fan capacitor
In the cooling and heating mode, the outdoor fan runs, but the compressor does not run.
Malfunction of compressor
Replace the compressor
Breakage of running capacitor of compressor
Replace the capacitor
The voltage is too low or too high.
Manostat is recommended.
Wrong wire connection
Connect the circuit diagram correctly
The protector itself has malfunction.
Use the multimeter to check whether the contact of the compressor is on when it is not overheated. If it is not on, then replace the protector
The compressor is too hot and leads to the action of the protector.
The refrigerant is not enough or is too much.
Adjust the volume of the refrigerant
The capillary is blocked and the temperature rises.
Replace the capillary
The compressor does not run smoothly or is stuck. The air discharge valve is damaged
Replace the compressor
The protector itself has malfunction.
Replace the protector


The swing fan does not run.
The torque of the swing motor is not enough
Wrong connection
The controller is damaged(IC2003 is damaged, the swing relay can not close, etc)
First, check whether the connection is wrong. If no, replace the parts
In cool, heat mode, the outdoor unit and compressor will not run.
Controller malfunction (IC2003 broken, creepage of parallel capacitor of relay loop, relay is broken etc.)
Change controller
Wire loose or wrong connection
Correctly wire according to the drawing
Improper setting of temperature
Adjust setting temp.
Water leakage
Drainage pipe blocked or broken
Change drainage pipe
Wrap of refrigerant pipe joint is not close enough.
Re-wrap and make it tight.
Abnormal sound and shake
Fan of indoor unit contacts other parts
Adjust fan location
Foreign object in indoor unit
Take out the foreign object
Compressor shakes too much
Adjust support washer of compressor, and tighten loosen screws
Touch of pipeline of outdoor unit
Separate the touching pipeline.
Touch of inner plates
1. Tighten connect screw.
2. Stick absorbing clay between plates.
Louver of outdoor unit touched outer case.
Adjust location of louver.
Abnormal sound inside compressor
Change compressor

9.2 Flashing LED of Indoor/Outdoor Unit and Primary Judgement

Flashing LED of Indoor/Outdoor Unit and Primary Judgement

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
1	High pressure protection of system	E1	OFF 3s and blink once						During cooling and drying operation, except indoor fan operates, all loads stop operation. During heating operation, the complete unit stops.	Possible reasons: 1. Refrigerant was superabundant; 2. Poor heat exchange (including filth blockage of heat exchanger and bad radiating environment); Ambient temperature is too high.
2	Antifreezing protection	E2	OFF 3S and blink twice			OFF 1S and blink 3 times			During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates.	1. Poor air-return in indoor unit; 2. Fan speed is abnormal; 3. Evaporator is dirty.
3	In defect of refrigerant	F0					OFF 1S and blink 9 times		The Dual-8 Code Display will show F0 and the complete unit stops.	1.In defect of refrigerant; 2.Indoor evaporator temperature sensor works abnormally; 3.The unit has been plugged up somewhere.
4	High discharge temperature protection of compressor	E4	OFF 3S and blink 4 times			OFF 1S and blink 7 times			During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	Please refer to the malfunction analysis (discharge protection, overload).
5	Overcurrent protection	E5	OFF 3S and blink 5 times			OFF 1S and blink 5 times			During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	1. Supply voltage is unstable; 2. Supply voltage is too low and load is too high; 3. Evaporator is dirty.
6	Communi-cation Malfunction	E6	OFF 3S and blink 6 times			Always ON			During cooling operation, compressor stops while indoor fan motor operates. During heating operation, the complete unit stops.	Refer to the corresponding malfunction analysis.
7	High temperature resistant protection	E8	OFF 3S and blink 8 times			OFF 1S and blink 6 times			During cooling operation: compressor will stop while indoor fan will operate. During heating operation, the complete unit stops.	Refer to the malfunction analysis (overload, high temperature resistant).
8	EEPROM malfunction	EE			OFF 3S and blink 15 times	OFF 1S and blink 11 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
9	Limit/ decrease frequency due to high temperature of module	EU		OFF 3S and blink 6 times	OFF 3S and blink 6 times				All loads operate normally, while operation frequency for compressor is decreased	Discharging after the complete unit is de-energized for 20mins, check whether the thermal grease on IPM Module of outdoor control panel AP1 is sufficient and whether the radiator is inserted tightly. If its no use, please replace control panel AP1.
10	Malfunction protection of jumper cap	C5	OFF 3S and blink 15 times						Wireless remote receiver and button are effective, but can not dispose the related command	1. No jumper cap insert on mainboard. 2. Incorrect insert of jumper cap. 3. Jumper cap damaged. 4. Abnormal detecting circuit of mainboard.

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
11	Gathering refrigerant	Fo	OFF 3S and blink 1 times	OFF 3S and blink 1 times		OFF 1S and blink 17 times			When the outdoor unit receive signal of Gathering refrigerant ,the system will be forced to run under cooling mode for gathering refrigerant	Nominal cooling mode
12	Indoor ambient temperature sensor is open/short circuited	F1		OFF 3S and blink once					During cooling and drying operation, indoor unit operates while other loads will stop; during heating operation, the complete unit will stop operation.	1. Loosening or bad contact of indoor ambient temp. sensor and mainboard terminal. 2. Components in mainboard fell down leads short circuit. 3. Indoor ambient temp. sensor damaged.(check with sensor resistance value chart) 4. Mainboard damaged.
13	Indoor evaporator temperature sensor is open/short circuited	F2		OFF 3S and blink twice					AC stops operation once reaches the setting temperature. Cooling, drying: internal fan motor stops operation while other loads stop operation; heating: AC stop operation	1. Loosening or bad contact of Indoor evaporator temp. sensor and mainboard terminal. 2. Components on the mainboard fall down leads short circuit. 3. Indoor evaporator temp. sensor damaged.(check temp. sensor value chart for testing) 4. Mainboard damaged.
14	Outdoor ambient temperature sensor is open/short circuited	F3		OFF 3S and blink 3 times			OFF 1S and blink 6 times		During cooling and drying operating, compressor stops while indoor fan operates; During heating operation, the complete unit will stop operation	Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor)
15	Outdoor condenser temperature sensor is open/short circuited	F4		OFF 3S and blink 4 times			OFF 1S and blink 5 times		During cooling and drying operation, compressor stops while indoor fan will operate; During heating operation, the complete unit will stop operation.	Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor)
16	Outdoor discharge temperature sensor is open/short circuited	F5		OFF 3S and blink 5 times			OFF 1S and blink 7 times		During cooling and drying operation, compressor will sop after operating for about 3 mins, while indoor fan will operate; During heating operation, the complete unit will stop after operating for about 3 mins.	1.Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor) 2.The head of temperature sensor hasnt been inserted into the copper tube
17	Limit/ decrease frequency due to overload	F6		OFF 3S and blink for 6 times			OFF 1S and blink 3 times		All loads operate normally, while operation frequency for compressor is decreased	Refer to the malfunction analysis (overload, high temperature resistant)
18	Decrease frequency due to overcurrent	F8		OFF 3S and blink 8 times			OFF 1S and blink once		All loads operate normally, while operation frequency for compressor is decreased	The input supply voltage is too low; System pressure is too high and overload

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
19	Decrease frequency due to high air discharge	F9		OFF 3S and blink 9 times			OFF 1S and blink twice		All loads operate normally, while operation frequency for compressor is decreased	Overload or temperature is too high; Refrigerant is insufficient; Malfunction of electric expansion valve (EKV)
20	Limit/ decrease frequency due to antifreezing	FH		OFF 3S and blink 2 times	OFF 3S and blink 2 times		OFF 1S and blink 4 times		All loads operate normally, while operation frequency for compressor is decreased	Poor air-return in indoor unit or fan speed is too low
21	Voltage for DC bus-bar is too high	PH		OFF 3S and blink 11 times		OFF 1S and blink 13 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	1. Measure the voltage of position L and N on wiring board (XT), if the voltage is higher than 265VAC, turn on the unit after the supply voltage is increased to the normal range. 2.If the AC input is normal, measure the voltage of electrolytic capacitor C on control panel (AP1), if its normal, theres malfunction for the circuit, please replace the control panel (AP1)
22	Voltage of DC bus-bar is too low	PL			OFF 3S and blink 21 times	OFF 1S and blink 12 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	1. Measure the voltage of position L and N on wiring board (XT), if the voltage is higher than 150VAC, turn on the unit after the supply voltage is increased to the normal range. 2.If the AC input is normal, measure the voltage of electrolytic capacitor C on control panel (AP1), if its normal, theres malfunction for the circuit, please replace the control panel (AP1)
23	Compressor Min frequence in test state	P0		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during min. cooling or min. heating test
24	Compressor rated frequence in test state	P1		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during nominal cooling or nominal heating test
25	Compressor maximum frequence in test state	P2		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during max. cooling or max. heating test

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
26	Compressor intermediate frequence in test state	P3		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during middle cooling or middle heating test
27	Overcurrent protection of phase current for compressor	P5		OFF 3S and blink 15 times					During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.
28	Charging malfunction of capacitor	PU			OFF 3S and blink 17 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Refer to the part three—charging malfunction analysis of capacitor
29	Malfunction of module temperature sensor circuit	P7			OFF 3S and blink 18 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
30	Module high temperature protection	P8			OFF 3S and blink 19 times				During cooling operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	After the complete unit is de-energized for 20mins, check whether the thermal grease on IPM Module of outdoor control panel AP1 is sufficient and whether the radiator is inserted tightly. If its no use, please replace control panel AP1.
31	Decrease frequency due to high temperature resistant during heating operation	H0			OFF 3S and blink 10 times				All loads operate normally, while operation frequency for compressor is decreased	Refer to the malfunction analysis (overload, high temperature resistant)
32	Static dedusting protection	H2			OFF 3S and blink twice					
33	Overload protection for compressor	H3			OFF 3S and blink 3 times	OFF 1S and blink 8 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	1. Wiring terminal OVC-COMP is loosened. In normal state, the resistance for this terminal should be less than 1ohm. 2.Refer to the malfunction analysis (discharge protection, overload)

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
34	System is abnormal	H4			OFF 3S and blink 4 times	OFF 1S and blink 6 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (overload, high temperature resistant)
35	IPM protection	H5			OFF 3S and blink 5 times	OFF 1S and blink 4 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.
36	Module temperature is too high	H5			OFF 3S and blink 5 times	OFF 1S and blink 10 times				
37	Internal motor (fan motor) do not operate	H6	OFF 3S and blink 11 times						Internal fan motor, external fan motor, compressor and electric heater stop operation,guide louver stops at present location.	1. Bad contact of DC motor feedback terminal. 2. Bad contact of DC motor control end. 3. Fan motor is stalling. 4. Motor malfunction. 5. Malfunction of mainboard rev detecting circuit.
38	Desynchro-nizing of compressor	H7			OFF 3S and blink 7 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.
39	PFC protection	HC			OFF 3S and blink 6 times	OFF 1S and blink 14 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis
40	Outdoor DC fan motor malfunction	L3	OFF 3S and blink 23 times				OFF 1S and blink 14 times		Outdoor DC fan motor malfunction lead to compressor stop operation,	DC fan motor malfunction or system blocked or the connector loosed
41	power protection	L9	OFF 3S and blink 20 times			OFF 1S and blink 9 times			compressor stop operation and Outdoor fan motor will stop 30s latter , 3 minutes latter fan motor and compressor will restart	To protect the electronical components when detect high power
42	Indoor unit and outdoor unit doesn't match	LP	OFF 3S and blink 19 times			OFF 1S and blink 16 times			compressor and Outdoor fan motor can’t work	Indoor unit and outdoor unit doesn't match
43	Failure start-up	LC			OFF 3S and blink 11 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
44	Malfunction of phase current detection circuit for compressor	U1			OFF 3S and blink 13 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
45	Malfunction of voltage dropping for DC bus-bar	U3			OFF 3S and blink 20 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Supply voltage is unstable
46	Malfunction of complete units current detection	U5		OFF 3S and blink 13 times					During cooling and drying operation, the compressor will stop while indoor fan will operate; During heating operating, the complete unit will stop operation.	Theres circuit malfunction on outdoor units control panel AP1, please replace the outdoor units control panel AP1.
47	The four-way valve is abnormal	U7		OFF 3S and blink 20 times					If this malfunction occurs during heating operation, the complete unit will stop operation.	1.Supply voltage is lower than AC175V; 2.Wiring terminal 4V is loosened or broken; 3.4V is damaged, please replace 4V.
48	Zero-crossing malfunction of outdoor unit	U9	OFF 3S and blink 18 times						During cooling operation, compressor will stop while indoor fan will operate; during heating,the complete unit will stop operation.	Replace outdoor control panel AP1
49	Frequency limiting (power)						OFF 1S and blink 13 times			
50	Compressor running					OFF 1S and blink once				
51	The temperature for turning on the unit is reached						OFF 1S and blink 8 times			
52	Frequency limiting (module temperature)						OFF 1S and blink 11 times			

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
53	Normal communica-tion							OFF 0.5S and blink once		
54	Defrosting				OFF 3S and blink once (during blinking, ON 10s and OFF 0.5s)	OFF 1S and blink twice			Defrosting will occur in heating mode. Compressor will operate while indoor fan will stop operation.	Its the normal state

9.3 How to Check Simply the Main Part

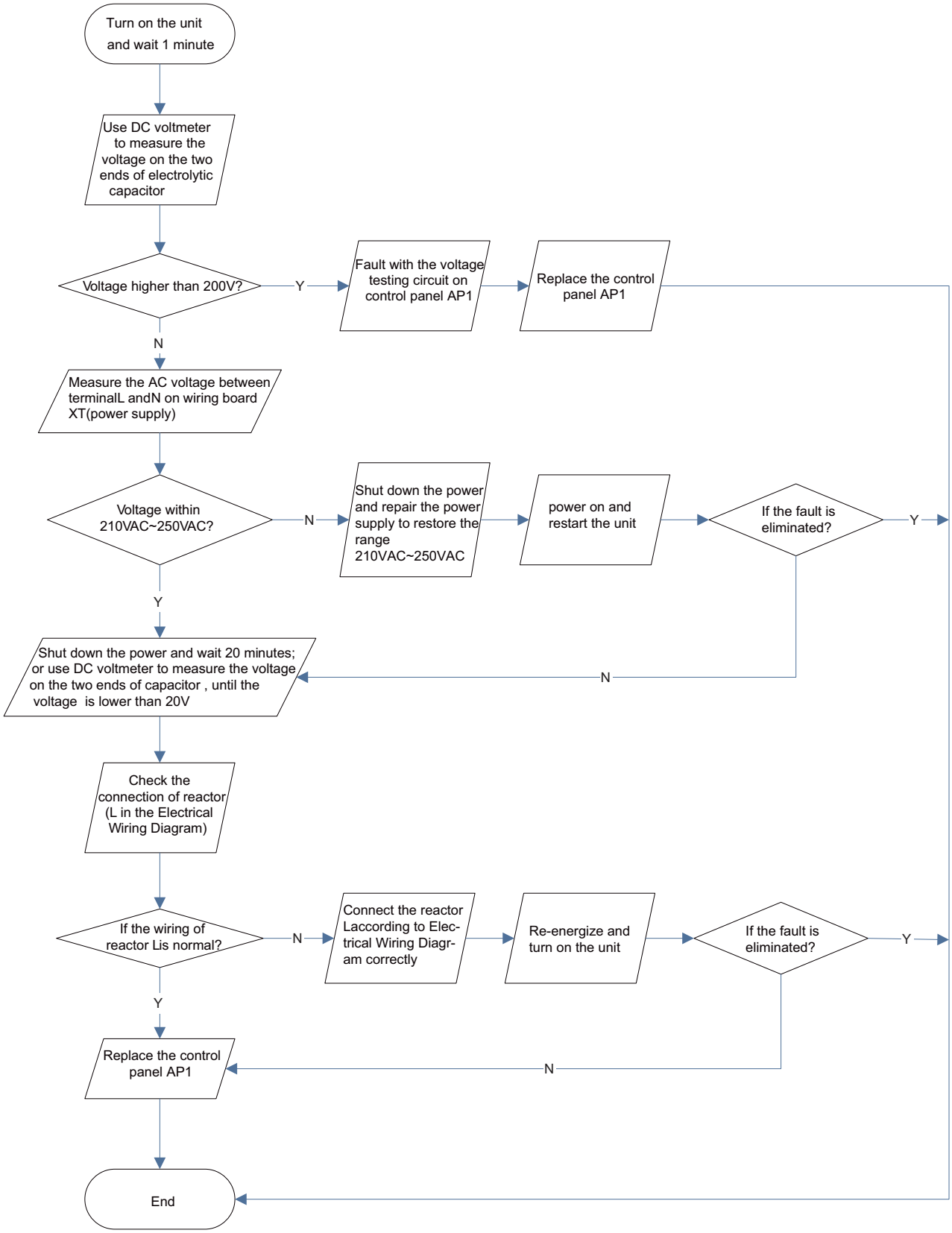
(1) Capacitor charge fault (Fault with outdoor unit) (AP1 below refers to the outdoor control panel)

Main Check Points:

●Use AC voltmeter to check if the voltage between terminal L and N on the wiring board is within 210VAC~240VAC.

●Is the reactor (L) correctly connected? Is the connection loose or fallen? Is the reactor (L) damaged?

Fault diagnosis process:


Turn on the unit and wait 1 minute
Use DC voltmeter to measure the voltage on the two ends of electrolytic capacitor
Voltage higher than 200V?
Y
Fault with the voltage testing circuit on control panel AP1
Replace the control panel AP1
N
Measure the AC voltage between terminalL andN on wiring board XT(power supply)
Voltage within 210VAC~250VAC?
N
Shut down the power and repair the power supply to restore the range 210VAC~250VAC
power on and restart the unit
If the fault is eliminated?
Y
Y
Shut down the power and wait 20 minutes; or use DC voltmeter to measure the voltage on the two ends of capacitor , until the voltage is lower than 20V
N
Check the connection of reactor (L in the Electrical Wiring Diagram)
If the wiring of reactor Lis normal?
N
Connect the reactor Laccording to Electrical Wiring Diagram correctly
Re-energize and turn on the unit
If the fault is eliminated?
Y
Y
Replace the control panel AP1
N
End

(2) IPM Protection, Out-of-step Fault, Compressor Phase Overcurrent (AP1 below refers to the outdoor control panel)

Main check points:

●Is the connection between control panel AP1 and compressor COMP secure? Loose? Is the connection in correct order?

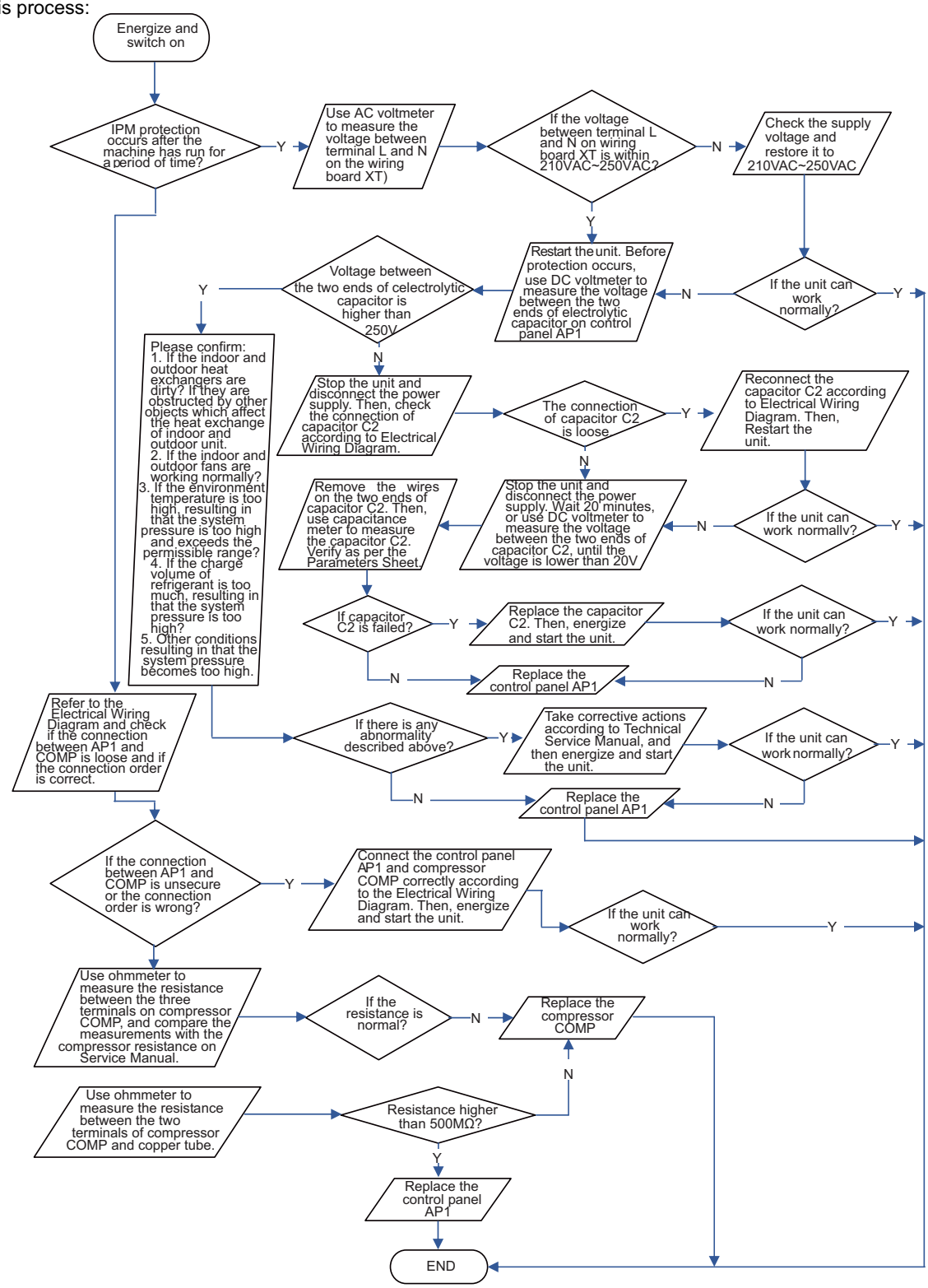
●Is the voltage input of the machine within normal range? (Use AC voltmeter to measure the voltage between terminal L and N on the wiring board XT)

●Is the compressor coil resistance normal? Is the insulation of compressor coil against the copper tube in good condition?

●Is the working load of the machine too high? Is the radiation good?

l●s the charge volume of refrigerant correct?

Fault diagnosis process:


Energize and switch on
IPM protection occurs after the machine has run for a period of time?
Y
Use AC voltmeter to measure the voltage between terminal L and N on the wiring board XT)
If the voltage between terminal L and N on wiring board XT is within 210VAC~250VAC?
N
Check the supply voltage and restore it to 210VAC~250VAC
Y
Restart the unit. Before protection occurs, use DC voltmeter to measure the voltage between the two ends of electrolytic capacitor on control panel AP1
N
If the unit can work normally?
Y
Voltage between the two ends of celectrolytic capacitor is higher than 250V
Y
N
Please confirm:
1. If the indoor and outdoor heat exchangers are dirty? If they are obstructed by other objects which affect the heat exchange of indoor and outdoor unit.
2. If the indoor and outdoor fans are working normally?
3. If the environment temperature is too high, resulting in that the system pressure is too high and exceeds the permissible range?
4. If the charge volume of refrigerant is too much, resulting in that the system pressure is too high?
5. Other conditions resulting in that the system pressure becomes too high.
Stop the unit and disconnect the power supply. Then, check the connection of capacitor C2 according to Electrical Wiring Diagram.
The connection of capacitor C2 is loose
Y
Reconnect the capacitor C2 according to Electrical Wiring Diagram. Then, Restart the unit.
N
Remove the wires on the two ends of capacitor C2. Then, use capacitance meter to measure the capacitor C2. Verify as per the Parameters Sheet.
Stop the unit and disconnect the power supply. Wait 20 minutes, or use DC voltmeter to measure the voltage between the two ends of capacitor C2, until the voltage is lower than 20V
N
If the unit can work normally?
Y
If capacitor C2 is failed?
Y
Replace the capacitor C2. Then, energize and start the unit.
If the unit can work normally?
Y
N
Replace the control panel AP1
N
Refer to the Electrical Wiring Diagram and check if the connection between AP1 and COMP is loose and if the connection order is correct.
If there is any abnormality described above?
Y
Take corrective actions according to Technical Service Manual, and then energize and start the unit.
If the unit can work normally?
Y
N
Replace the control panel AP1
N
If the connection between AP1 and COMP is unsecure or the connection order is wrong?
Y
Connect the control panel AP1 and compressor COMP correctly according to the Electrical Wiring Diagram. Then, energize and start the unit.
If the unit can work normally?
Y
Use ohmmeter to measure the resistance between the three terminals on compressor COMP, and compare the measurements with the compressor resistance on Service Manual.
If the resistance is normal?
N
Replace the compressor COMP
N
Use ohmmeter to measure the resistance between the two terminals of compressor COMP and copper tube.
Resistance higher than 500MΩ?
Y
Replace the control panel AP1
END

(3)High temperature and overload protection diagnosis (AP1 hereinafter refers to the control board of the outdoor unit)

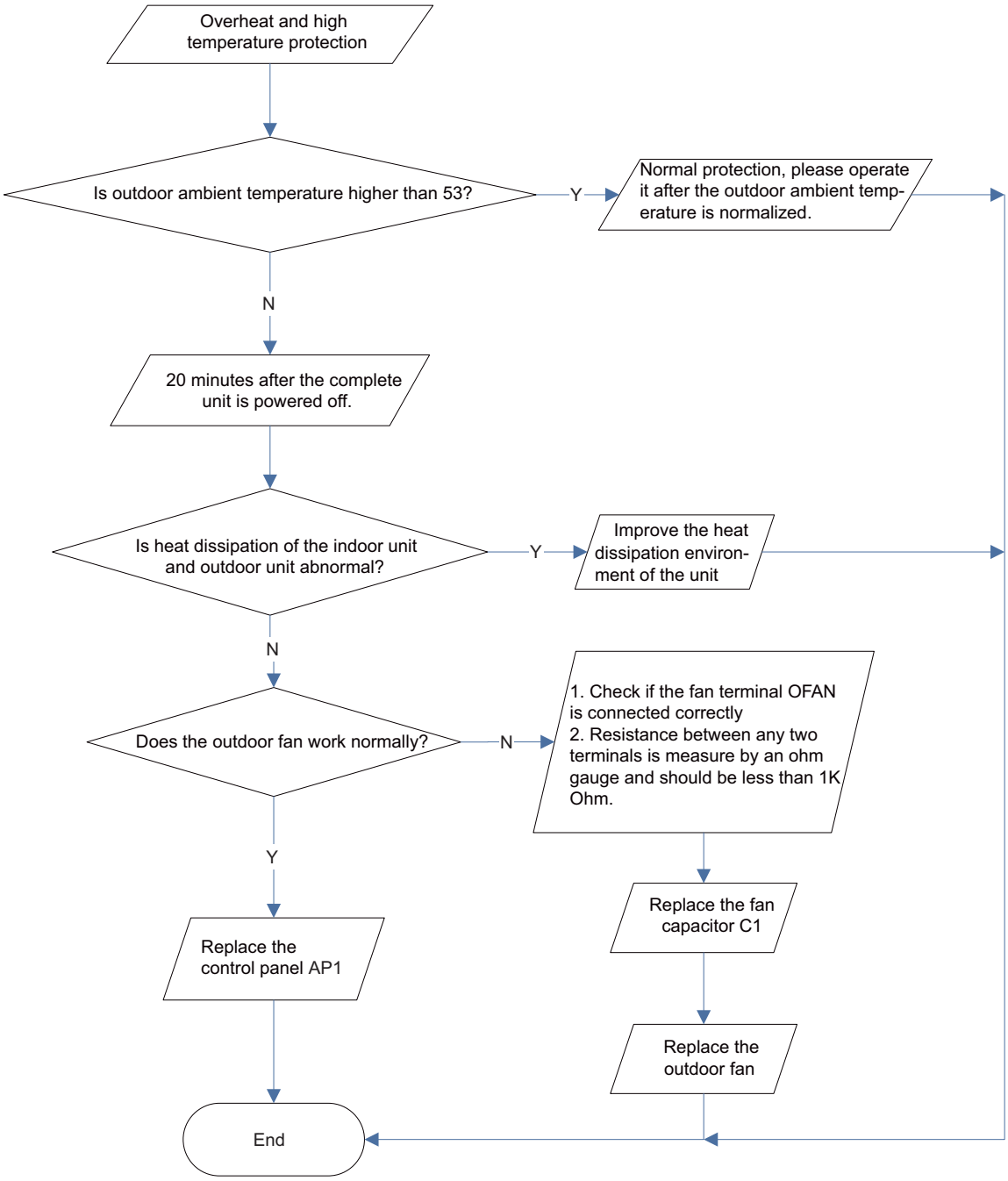
Mainly detect:

●Is outdoor ambient temperature in normal range?

●Are the outdoor and indoor fans operating normally?

●Is the heat dissipation environment inside and outside the unit good?

Fault diagnosis process:


Overheat and high temperature protection
Is outdoor ambient temperature higher than 53?
Y
Normal protection, please operate it after the outdoor ambient temperature is normalized.
N
20 minutes after the complete unit is powered off.
Is heat dissipation of the indoor unit and outdoor unit abnormal?
Y
Improve the heat dissipation environment of the unit
N
Does the outdoor fan work normally?
N
1. Check if the fan terminal OFAN is connected correctly
2. Resistance between any two terminals is measure by an ohm gauge and should be less than 1K Ohm.
Y
Replace the fan capacitor C1
Replace the control panel AP1
Replace the outdoor fan
End

(4) Start-up failure (following AP1 for outdoor unit control board)

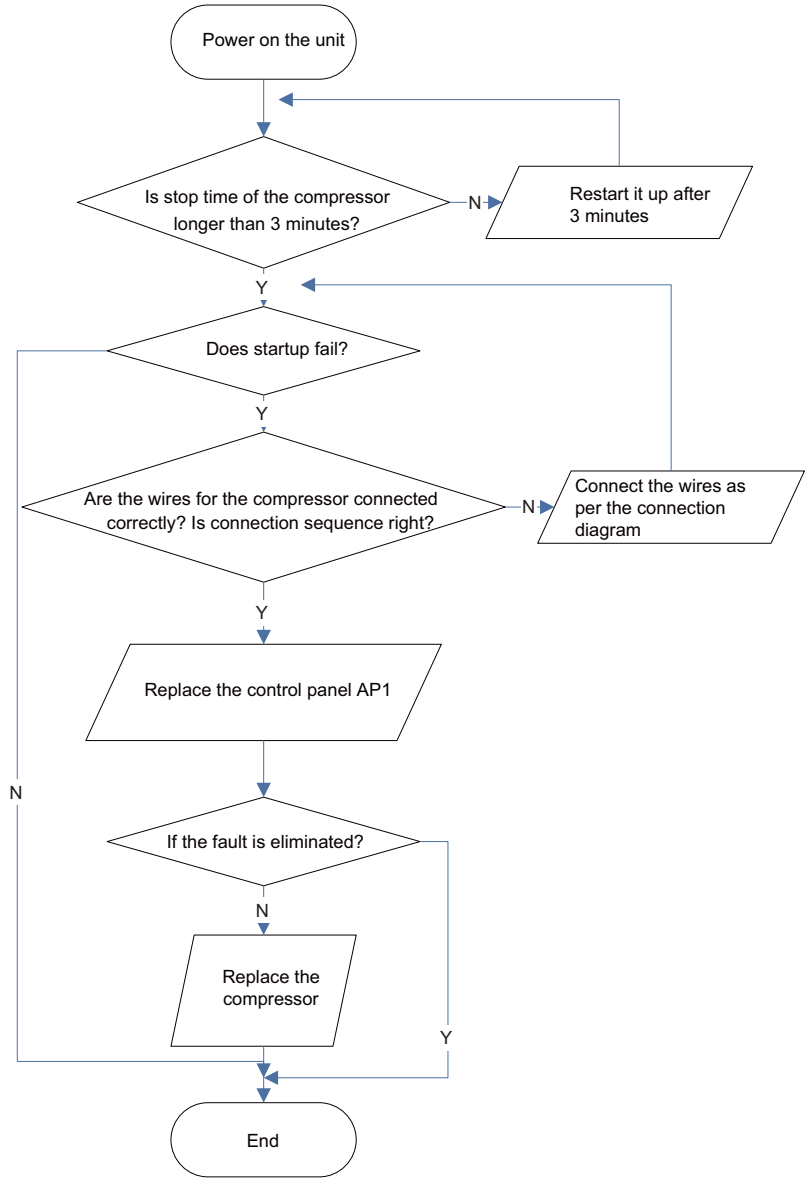
Mainly detect:

●Whether the compressor wiring is connected correct?

●Is compressor broken?

●Is time for compressor stopping enough?

Fault diagnosis process:



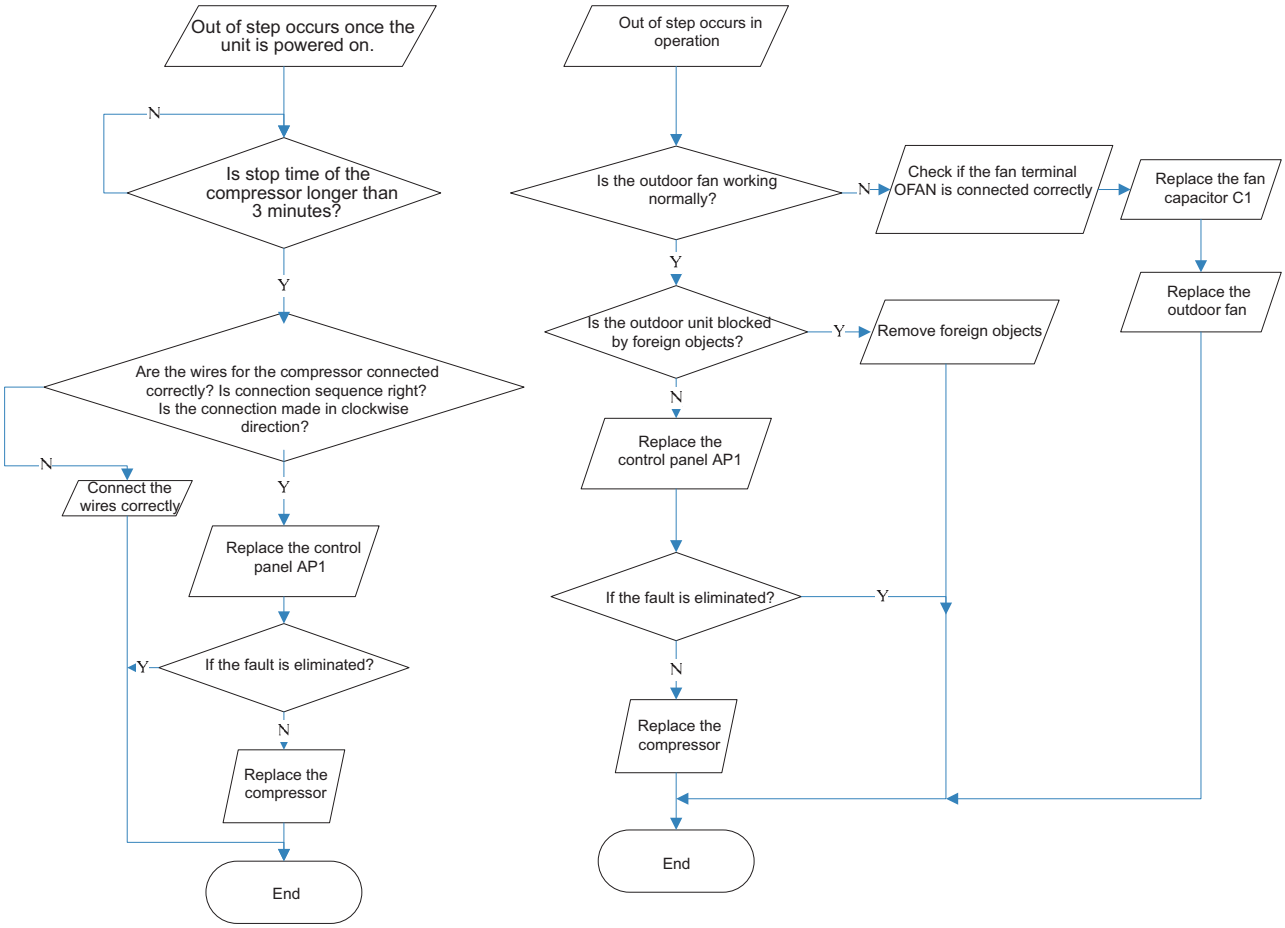
(5) Out of step diagnosis for the compressor (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

●Is the system pressure too high?

●Is the input voltage too low?

Fault diagnosis process:


Out of step occurs once the unit is powered on.
N
Is stop time of the compressor longer than 3 minutes?
Y
Are the wires for the compressor connected correctly? Is connection sequence right? Is the connection made in clockwise direction?
N
Connect the wires correctly
Y
Replace the control panel AP1
If the fault is eliminated?
Y
N
Replace the compressor
End
Out of step occurs in operation
Is the outdoor fan working normally?
N
Check if the fan terminal OFAN is connected correctly
Replace the fan capacitor C1
Replace the outdoor fan
Y
Is the outdoor unit blocked by foreign objects?
Y
Remove foreign objects
N
Replace the control panel AP1
If the fault is eliminated?
Y
N
Replace the compressor
End

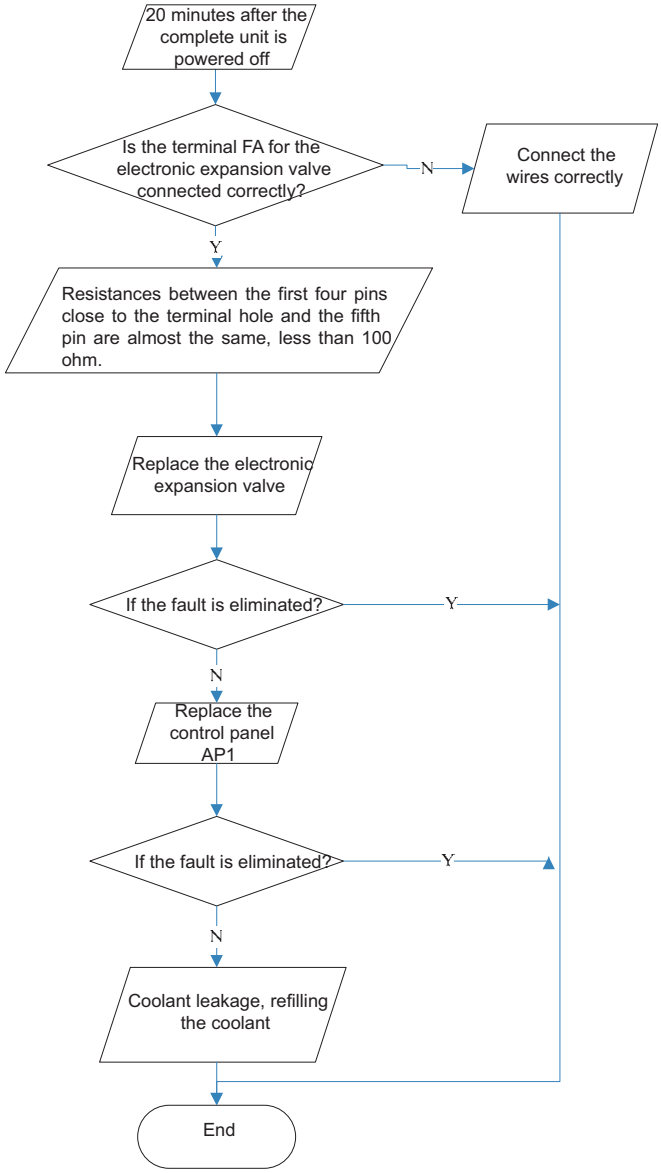
(6)Overload and air exhaust malfunction diagnosis (following AP1 for outdoor unit control board)

Mainly detect:

●Is the PMV connected well or not? Is PMV damaged?

●Is refrigerant leaked?

Fault diagnosis process:

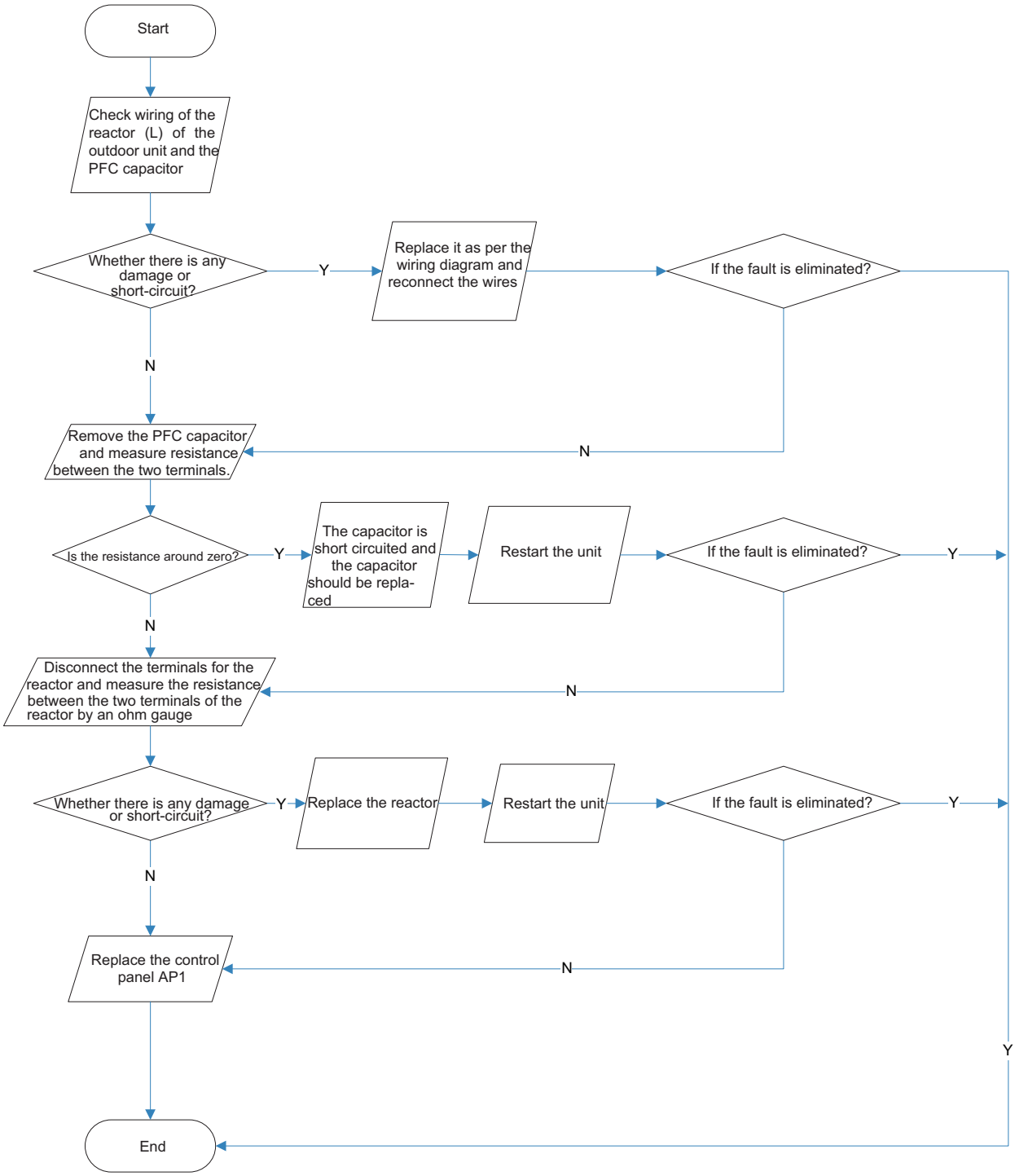

20 minutes after the complete unit is powered off
Is the terminal FA for the electronic expansion valve connected correctly?
N
Connect the wires correctly
Y
Resistances between the first four pins close to the terminal hole and the fifth pin are almost the same, less than 100 ohm.
Replace the electronic expansion valve
If the fault is eliminated?
Y
N
Replace the control panel AP1
If the fault is eliminated?
Y
N
Coolant leakage, refilling the coolant
End

(7)Power factor correct or (PFC) fault (a fault of outdoor unit) (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

●Check if the reactor (L) of the outdoor unit and the PFC capacitor are broken

Fault diagnosis process:


Start
Check wiring of the reactor (L) of the outdoor unit and the PFC capacitor
Whether there is any damage or short-circuit?
Y
Replace it as per the wiring diagram and reconnect the wires
If the fault is eliminated?
N
Remove the PFC capacitor and measure resistance between the two terminals.
N
Is the resistance around zero?
Y
The capacitor is short circuited and the capacitor should be repla-ced
Restart the unit
If the fault is eliminated?
Y
N
Disconnect the terminals for the reactor and measure the resistance between the two terminals of the reactor by an ohm gauge
N
Whether there is any damage or short-circuit?
Y
Replace the reactor
Restart the unit
If the fault is eliminated?
Y
N
Replace the control panel AP1
N
Y
End

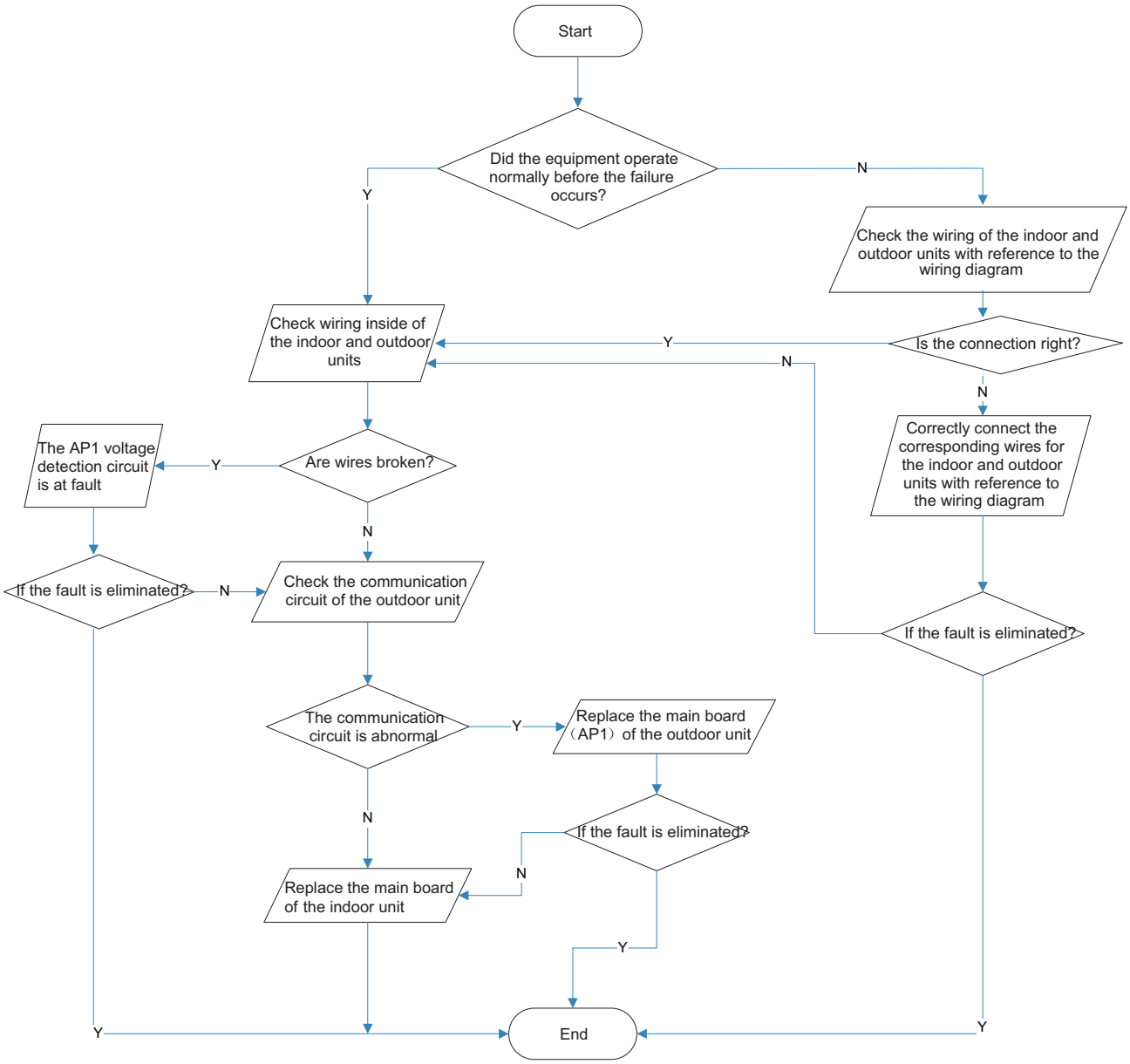
(8) Communication malfunction: (following AP1 for outdoor unit control board)

Mainly detect:

●Is there any damage for the indoor unit mainboard communication circuit? Is communication circuit damaged?

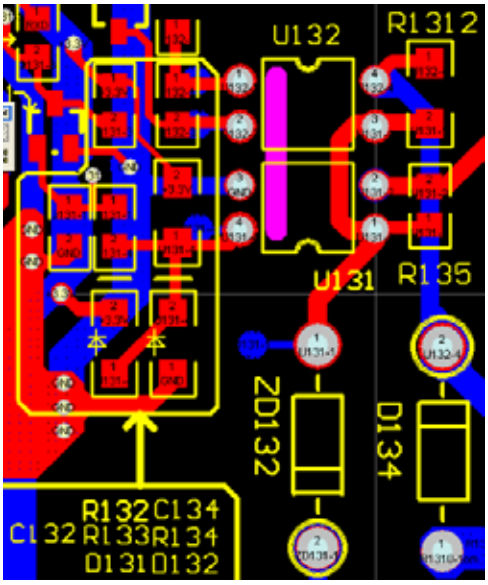
●Detect the indoor and outdoor units connection wire and indoor and outdoor units inside wiring is connect well or not, if is there any damage?

Fault diagnosis process:

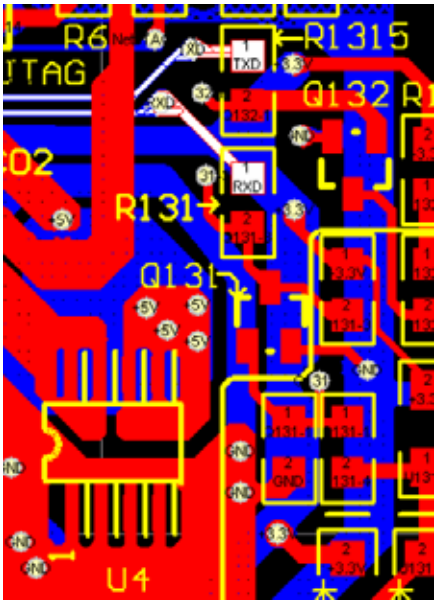

Start
Did the equipment operate normally before the failure occurs?
Y
N
Check the wiring of the indoor and outdoor units with reference to the wiring diagram
Is the connection right?
Y
N
Check wiring inside of the indoor and outdoor units
N
Correctly connect the corresponding wires for the indoor and outdoor units with reference to the wiring diagram
The AP1 voltage detection circuit is at fault
Y
Are wires broken?
N
If the fault is eliminated?
N
Check the communication circuit of the outdoor unit
If the fault is eliminated?
The communication circuit is abnormal
Y
Replace the main board （AP1）of the outdoor unit
N
If the fault is eliminated?
N
Replace the main board of the indoor unit
Y
Y
End
Y

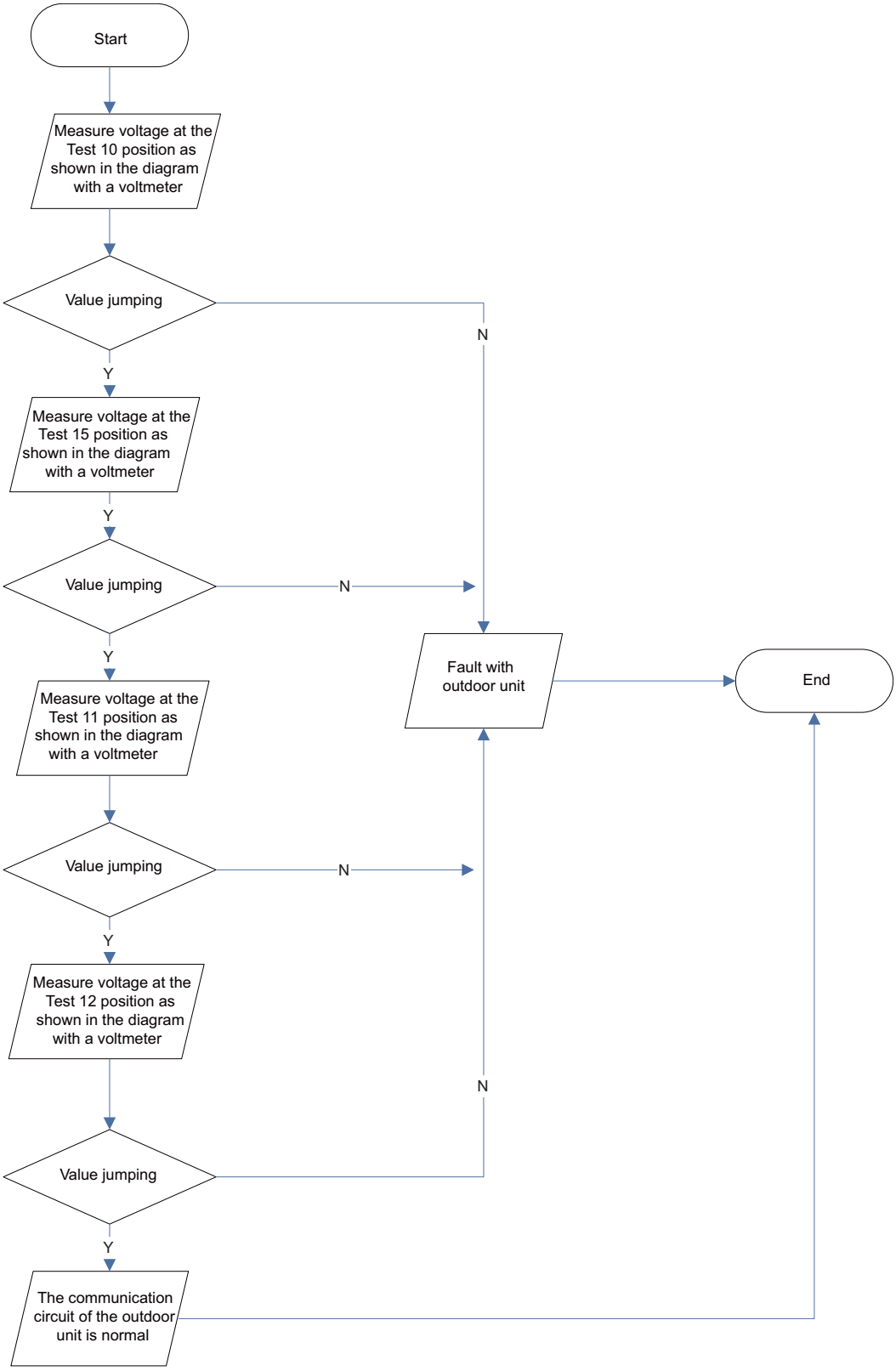
(9) Flow chart for outdoor communitcation circuit detecting:

(1) Test the voltage between N point of wiring board and communication cable with universal meter. The voltage shall be variable. Otherwise, it might be malfunction of mainboard of indoor unit, or malfunction of mainboard of outdoor unit, or wrong wire connection of indoor and outdoor unit. Please ensure that there is no malfunction of mainboard of indoor unit, or wrong wire connection of indoor and outdoor unit. After removing the malfunction of indoor unit, remove the malfunction of outdoor unit.
(2) Test the voltage of pin 1 and pin 2 of U132 with universal meter (voltage of both sides of R135). The voltage should be variable. (Test 10) Test the voltage of pin 3 and pin 4 of U132 with universal meter (voltage of both sides of R1312). The voltage should be variable. (Test 15) Otherwise, there is malfunction of mainboard of outdoor unit.



(3) Test the voltage of pin 3 and pin 4 of U131 with universal meter (voltage of both sides of R134). The voltage should be variable. (test 11) Test the voltage of pin 1 and pin 2 of U132 with universal meter (voltage of both sides of C134). The voltage should be variable. (test 12) Otherwise, there is malfunction of mainboard of outdoor unit.
(4) Test the voltage between pin 1 of R135 (white) and pin 1 of U4. The voltage should be variable. Test voltage between pin1 of R131 (white) and pin 1 of U4 with universal meter. The voltage should be variable. Otherwise, there is malfunction of mainboard of outdoor unit.




Start
Measure voltage at the Test 10 position as shown in the diagram with a voltmeter
Value jumping
N
Y
Measure voltage at the Test 15 position as shown in the diagram with a voltmeter
Y
Value jumping
N
Y
Measure voltage at the Test 11 position as shown in the diagram with a voltmeter
Value jumping
N
Y
Measure voltage at the Test 12 position as shown in the diagram with a voltmeter
N
Value jumping
Y
The communication circuit of the outdoor unit is normal
Fault with outdoor unit
End

Appendix

Appendix 1: Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(15K)									
Temp.（℃）	Resistance(kΩ)		Temp.（℃）	Resistance(kΩ)		Temp.（℃）	Resistance(kΩ)		Temp.（℃）	Resistance(kΩ)
-19	138.1		20	18.75		59	3.848		98	1.071
-18	128.6		21	17.93		60	3.711		99	1.039
-17	121.6		22	17.14		61	3.579		100	1.009
-16	115		23	16.39		62	3.454		101	0.98
-15	108.7		24	15.68		63	3.333		102	0.952
-14	102.9		25	15		64	3.217		103	0.925
-13	97.4		26	14.36		65	3.105		104	0.898
-12	92.22		27	13.74		66	2.998		105	0.873
-11	87.35		28	13.16		67	2.896		106	0.848
-10	82.75		29	12.6		68	2.797		107	0.825
-9	78.43		30	12.07		69	2.702		108	0.802
-8	74.35		31	11.57		70	2.611		109	0.779
-7	70.5		32	11.09		71	2.523		110	0.758
-6	66.88		33	10.63		72	2.439		111	0.737
-5	63.46		34	10.2		73	2.358		112	0.717
-4	60.23		35	9.779		74	2.28		113	0.697
-3	57.18		36	9.382		75	2.206		114	0.678
-2	54.31		37	9.003		76	2.133		115	0.66
-1	51.59		38	8.642		77	2.064		116	0.642
0	49.02		39	8.297		78	1.997		117	0.625
1	46.6		40	7.967		79	1.933		118	0.608
2	44.31		41	7.653		80	1.871		119	0.592
3	42.14		42	7.352		81	1.811		120	0.577
4	40.09		43	7.065		82	1.754		121	0.561
5	38.15		44	6.791		83	1.699		122	0.547
6	36.32		45	6.529		84	1.645		123	0.532
7	34.58		46	6.278		85	1.594		124	0.519
8	32.94		47	6.038		86	1.544		125	0.505
9	31.38		48	5.809		87	1.497		126	0.492
10	29.9		49	5.589		88	1.451		127	0.48
11	28.51		50	5.379		89	1.408		128	0.467
12	27.18		51	5.197		90	1.363		129	0.456
13	25.92		52	4.986		91	1.322		130	0.444
14	24.73		53	4.802		92	1.282		131	0.433
15	23.6		54	4.625		93	1.244		132	0.422
16	22.53		55	4.456		94	1.207		133	0.412
17	21.51		56	4.294		95	1.171		134	0.401
18	20.54		57	4.139		96	1.136		135	0.391
19	19.63		58	3.99		97	1.103		136	0.382

Appendix 2: Resistance Table of Outdoor and Indoor Tube Temperature Sensors(20K)									
Temp. （℃）	Resistance(kΩ)		Temp. （℃）	Resistance(kΩ)		Temp. （℃）	Resistance(kΩ)		Temp. （℃）	Resistance(kΩ)
-19	181.4		20	25.01		59	5.13		98	1.427
-18	171.4		21	23.9		60	4.948		99	1.386
-17	162.1		22	22.85		61	4.773		100	1.346
-16	153.3		23	21.85		62	4.605		101	1.307
-15	145		24	20.9		63	4.443		102	1.269
-14	137.2		25	20		64	4.289		103	1.233
-13	129.9		26	19.14		65	4.14		104	1.198
-12	123		27	18.13		66	3.998		105	1.164
-11	116.5		28	17.55		67	3.861		106	1.131
-10	110.3		29	16.8		68	3.729		107	1.099
-9	104.6		30	16.1		69	3.603		108	1.069
-8	99.13		31	15.43		70	3.481		109	1.039
-7	94		32	14.79		71	3.364		110	1.01
-6	89.17		33	14.18		72	3.252		111	0.983
-5	84.61		34	13.59		73	3.144		112	0.956
-4	80.31		35	13.04		74	3.04		113	0.93
-3	76.24		36	12.51		75	2.94		114	0.904
-2	72.41		37	12		76	2.844		115	0.88
-1	68.79		38	11.52		77	2.752		116	0.856
0	65.37		39	11.06		78	2.663		117	0.833
1	62.13		40	10.62		79	2.577		118	0.811
2	59.08		41	10.2		80	2.495		119	0.77
3	56.19		42	9.803		81	2.415		120	0.769
4	53.46		43	9.42		82	2.339		121	0.746
5	50.87		44	9.054		83	2.265		122	0.729
6	48.42		45	8.705		84	2.194		123	0.71
7	46.11		46	8.37		85	2.125		124	0.692
8	43.92		47	8.051		86	2.059		125	0.674
9	41.84		48	7.745		87	1.996		126	0.658
10	39.87		49	7.453		88	1.934		127	0.64
11	38.01		50	7.173		89	1.875		128	0.623
12	36.24		51	6.905		90	1.818		129	0.607
13	34.57		52	6.648		91	1.736		130	0.592
14	32.98		53	6.403		92	1.71		131	0.577
15	31.47		54	6.167		93	1.658		132	0.563
16	30.04		55	5.942		94	1.609		133	0.549
17	28.68		56	5.726		95	1.561		134	0.535
18	27.39		57	5.519		96	1.515		135	0.521
19	26.17		58	5.32		97	1.47		136	0.509

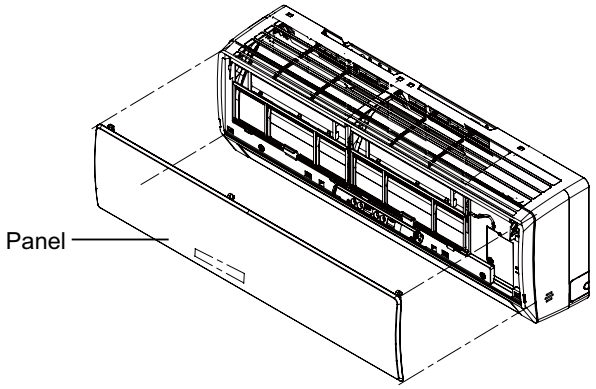
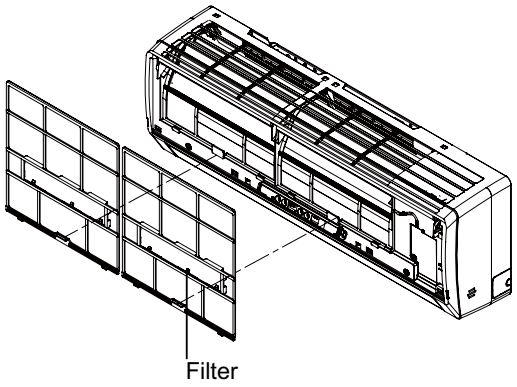
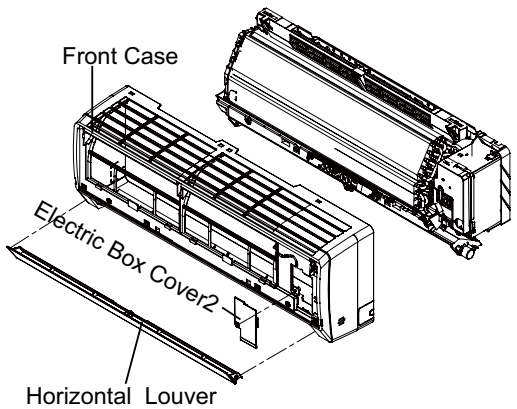
Appendix 3: Resistance Table of Outdoor Discharge Temperature Sensor(50K)									
Temp. （℃）	Resistance(kΩ)		Temp.（℃）	Resistance(kΩ)		Temp. （℃）	Resistance(kΩ)		Temp.（℃）	Resistance(kΩ)
-29	853.5		10	98		49	18.34		88	4.754
-28	799.8		11	93.42		50	17.65		89	4.609
-27	750		12	89.07		51	16.99		90	4.469
-26	703.8		13	84.95		52	16.36		91	4.334
-25	660.8		14	81.05		53	15.75		92	4.204
-24	620.8		15	77.35		54	15.17		93	4.079
-23	580.6		16	73.83		55	14.62		94	3.958
-22	548.9		17	70.5		56	14.09		95	3.841
-21	516.6		18	67.34		57	13.58		96	3.728
-20	486.5		19	64.33		58	13.09		97	3.619
-19	458.3		20	61.48		59	12.62		98	3.514
-18	432		21	58.77		60	12.17		99	3.413
-17	407.4		22	56.19		61	11.74		100	3.315
-16	384.5		23	53.74		62	11.32		101	3.22
-15	362.9		24	51.41		63	10.93		102	3.129
-14	342.8		25	49.19		64	10.54		103	3.04
-13	323.9		26	47.08		65	10.18		104	2.955
-12	306.2		27	45.07		66	9.827		105	2.872
-11	289.6		28	43.16		67	9.489		106	2.792
-10	274		29	41.34		68	9.165		107	2.715
-9	259.3		30	39.61		69	8.854		108	2.64
-8	245.6		31	37.96		70	8.555		109	2.568
-7	232.6		32	36.38		71	8.268		110	2.498
-6	220.5		33	34.88		72	7.991		111	2.431
-5	209		34	33.45		73	7.726		112	2.365
-4	198.3		35	32.09		74	7.47		113	2.302
-3	199.1		36	30.79		75	7.224		114	2.241
-2	178.5		37	29.54		76	6.998		115	2.182
-1	169.5		38	28.36		77	6.761		116	2.124
0	161		39	27.23		78	6.542		117	2.069
1	153		40	26.15		79	6.331		118	2.015
2	145.4		41	25.11		80	6.129		119	1.963
3	138.3		42	24.13		81	5.933		120	1.912
4	131.5		43	23.19		82	5.746		121	1.863
5	125.1		44	22.29		83	5.565		122	1.816
6	119.1		45	21.43		84	5.39		123	1.77
7	113.4		46	20.6		85	5.222		124	1.725
8	108		47	19.81		86	5.06		125	1.682
9	102.8		48	19.06		87	4.904		126	1.64

Note: The information above is for reference only.

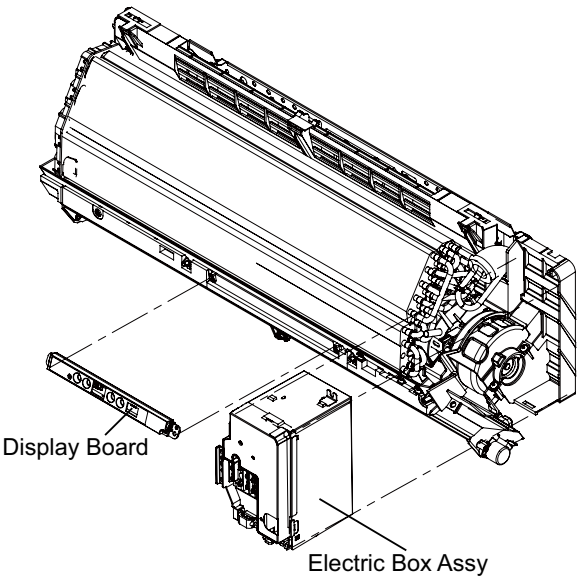
10. Removal Procedure

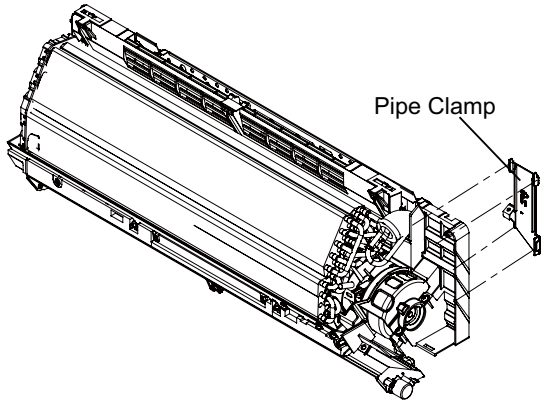
10.1 Removal Procedure of Indoor Unit

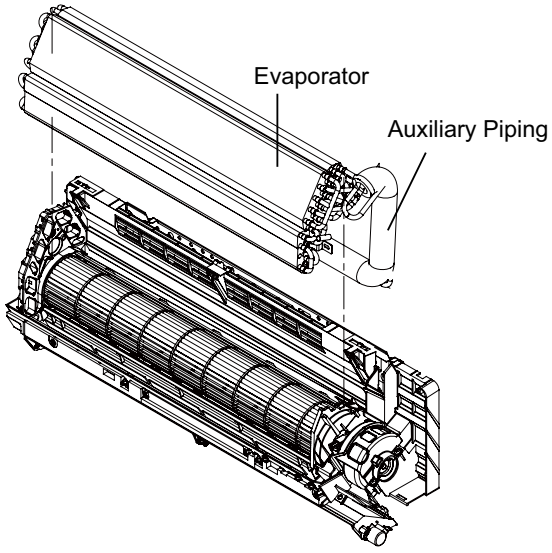
Warning **Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.**

Steps	Procedure	
	1.Remove panel	
	Open the front panel.Push the rotor shaft on both sides of the panel to make it separate from the groove .Remove the panel.	
	2.Remove filter	
	Loosen the clasp of the filter.Push the filter inward and then draw it upward to remove it.	
	3.Remove horizontal louver and front case	
	Remove axial sleeve of horizontal louver. Bend the louver outwards and then remove the louver. Loosen the screws of the electric box cover2 with screwdriver.Remove the electric box cover2. Open the screw cap on the front case. Remove the screws fixing the front case. Loosen the six clasps of the front case. Remove the front case.	

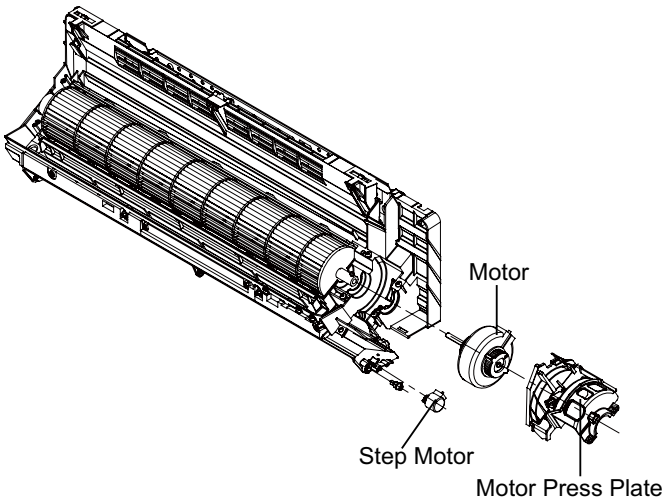
Steps	Procedure
4.Remove electric box assy	
	Remove the screws of the electric box assy.Remove the screws at the joint of the earthing wire and evaporator.Loosen the clasp at the joint of the electric box cover and the electric box.Remove the 2 screws of the display.Remove the electric box assy.
5.Remove evaporator	
1	Remove the screws of the press plate of connecting pipe.Remove press plate of connecting pipe.
2	Remove the 3 screws at the joint of the evaporator and rear case.Adjust slightly the pipe on the evaporator.Remove the evaporator.

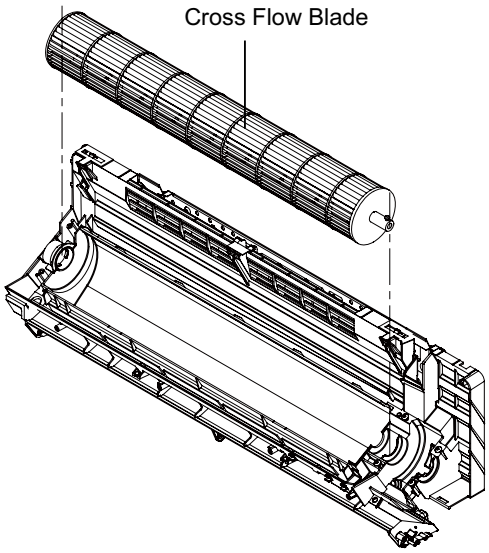






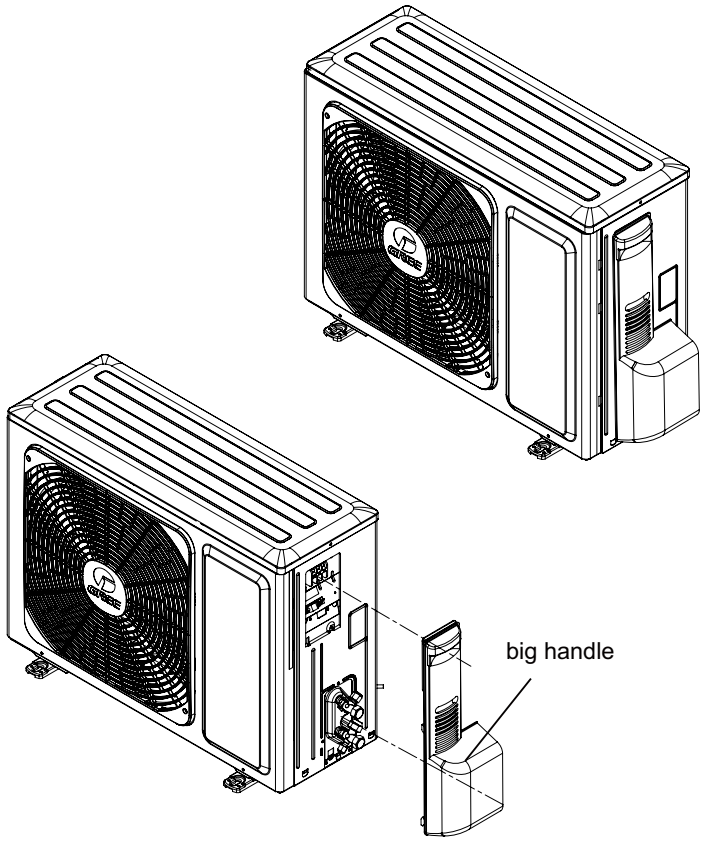
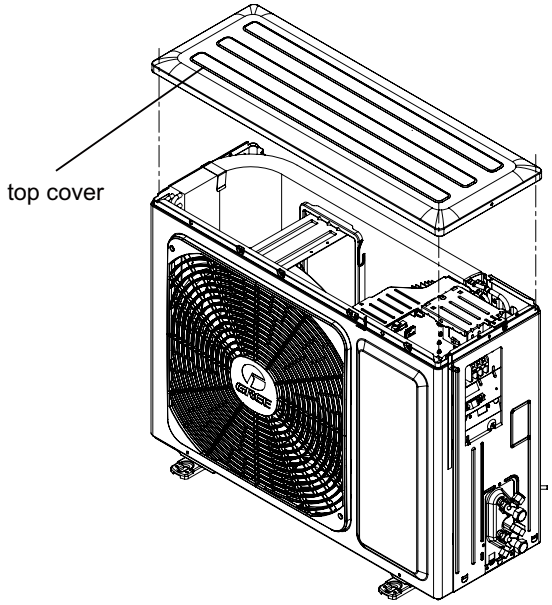
Steps	Procedure
6.Remove motor and axial flow blade	
1	Remove screws of step motor and then remove the motor. Remove the screw of the motor press plate and then remove the press plate. Remove the screws at the joint of the cross flow blade and the motor. Take down the motor.
2	Remove the cross flow blade.

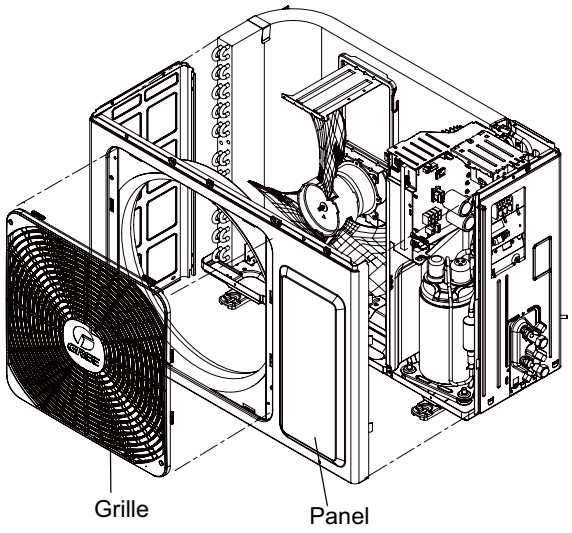
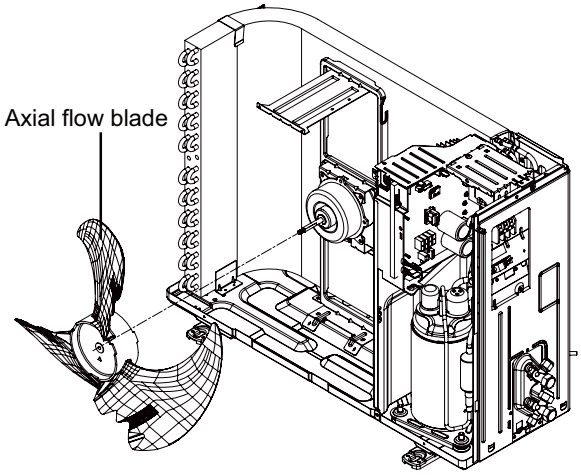
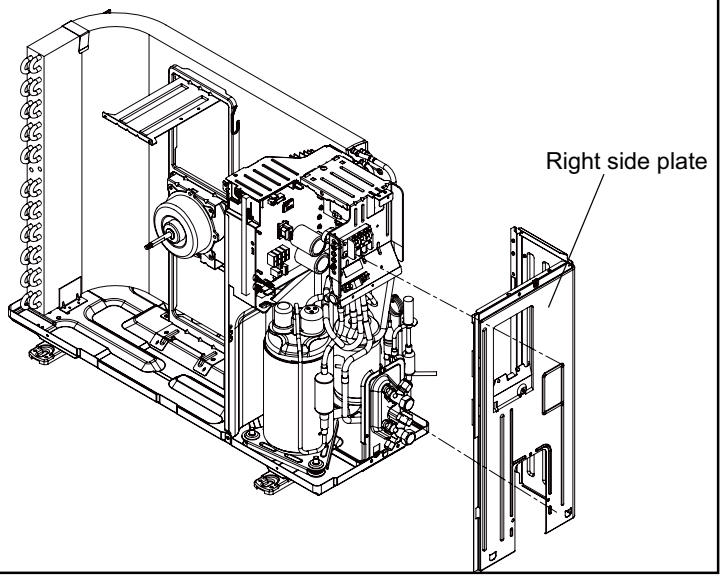




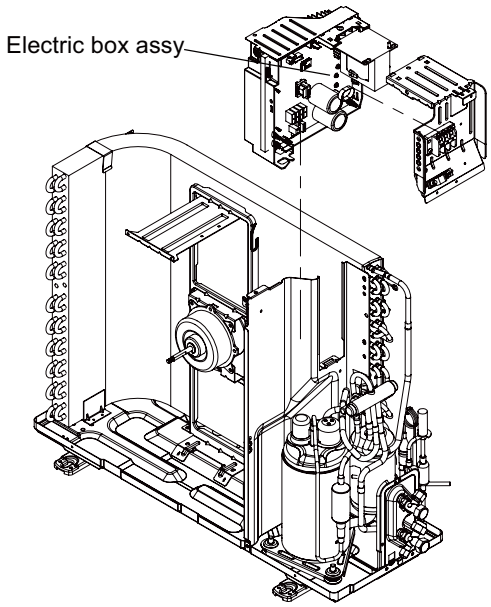
10.2 Removal Procedure of Outdoor Unit

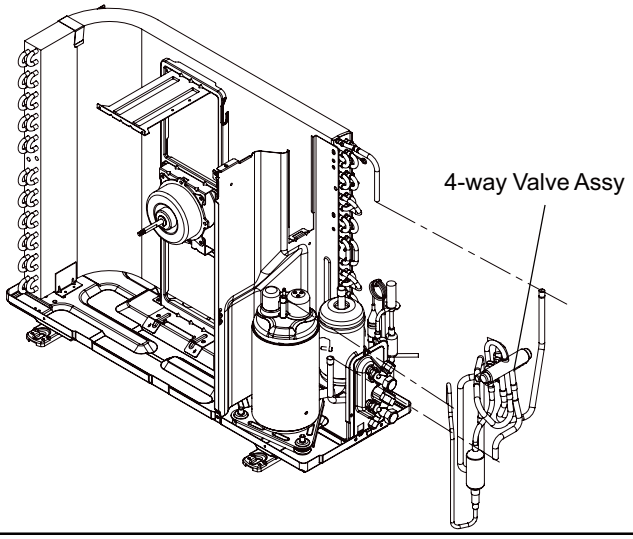
Warning **Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.**

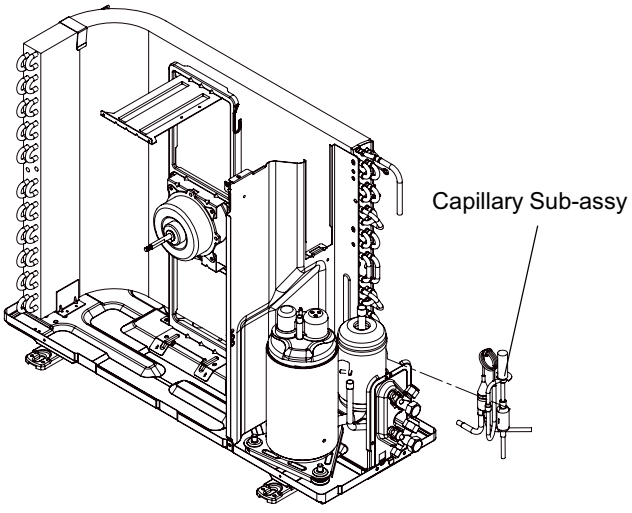
Steps	Procedure
1.Remove big handle	
Before disassamble. Remove 1 connection screw fixing big handleand then removethe big handle.	
2. Remove top cover	
Remove 3 connection screws among top cover plate, front panel and right sideplate. Then remove top cover plate.	

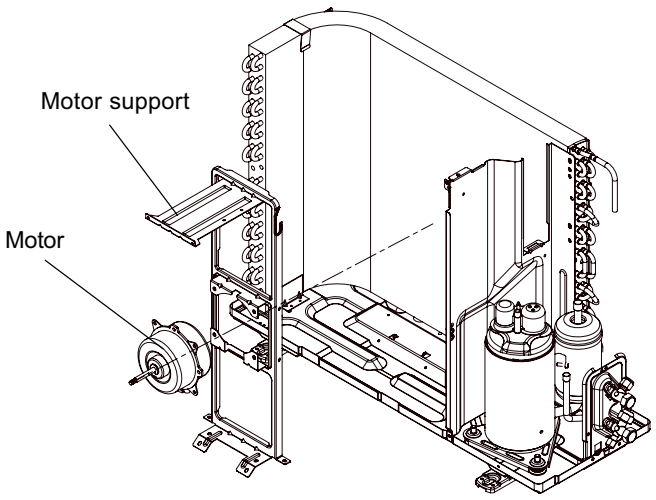
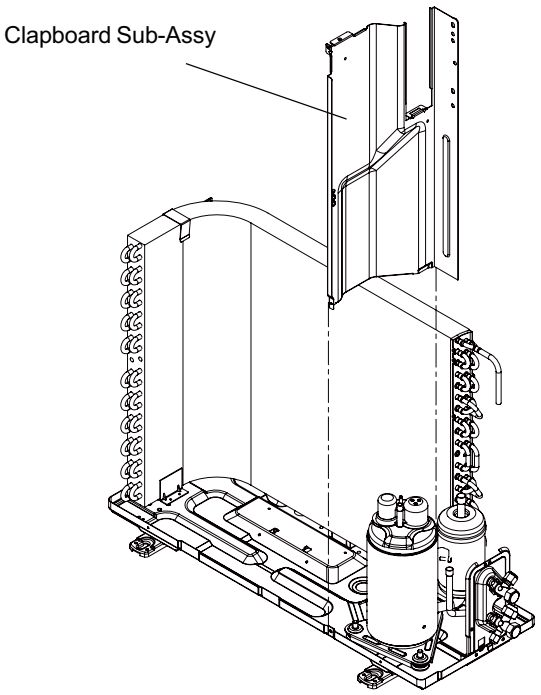
Steps	Procedure
3.Remove grille and front panel	
	Remove connection screws between the front grille and the front panel. Then remove the front grille. Remove connection screws connecting the front panel with the chassis and the motor support, and then remove the front panel.
	
4.Remove axial flow blade	
	Remove the nut fixing the blade and then remove the axial flow blade.
	
5.Remove right side plate	
	Remove connection screws connecting the right side plate with the valve support and the electric box. Then remove the right side plate.
	

Steps	Procedure
6.Remove electric box assy	Remove the 2 screws fixing the cover of electric box. Lift to remove the cover. Loosen the wire and disconnect the terminal. Lift to remove the electric box assy.
7.Remove 4-way valve assy	Unscrew the fastening nut of the 4-way Valve Assy coil and remove the coil. Wrap the 4-way Valve Assy with wet cotton and unsolder the 4 weld spots connecting the 4-way Valve Assy to take it out.(Note: Refrigerant should be discharged firstly.) Welding process should be as quickly as possible and keep wrapping cotton wet all the time. Be sure not to burn out the lead-out wire of compressor.
8.Remove capillary sub-assy	Unsolder weld point of capillary Sub-assy, valve and outlet pipe of condensator. Then remove the capillary Sub-assy. Do not block the capillary when unsoldering it. (Note: before unsoldering,discharge refrigerants completely)

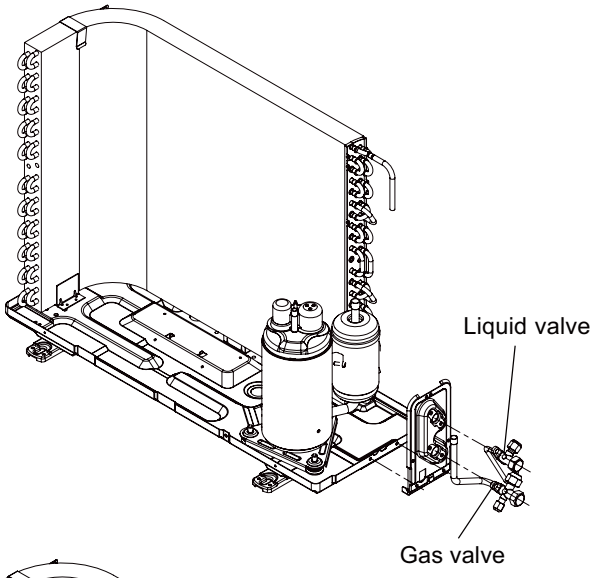


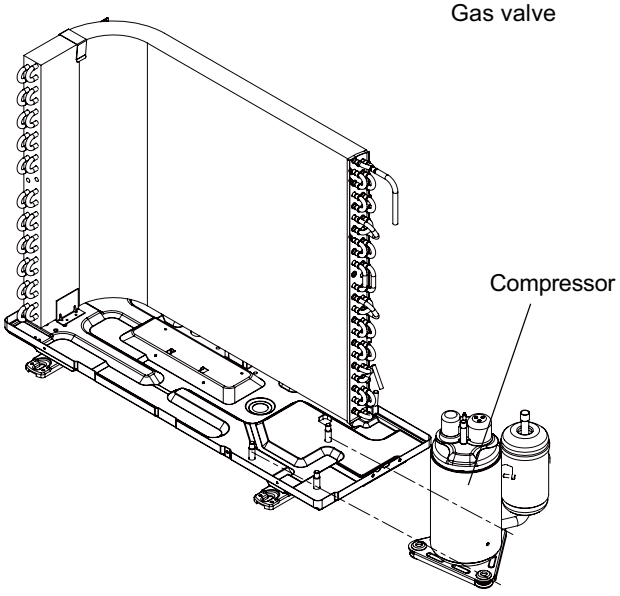




Steps	Procedure
9.Remove motor and motor support	
	Remove the 4 tapping screws fixing the motor. Pull out the lead-out wire and remove the motor. Remove the 2 tapping screws fixing the motor support. Lift motor support to remove it.
	
10.Remove clapboard sub-assy	
	Loosen the screws of the Clapboard Sub-Assy . The Clapboard Sub-Assy has a hook on the lower side. Lift and pull the Clapboard Sub-Assy to remove.
	

Steps	Procedure
11.Remove Compressor	
1	Remove the 2 screws fixing the gas valve. Unsolder the welding spot connecting gas valve and air return pipe and remove the gas valve. (Note: it is necessary to warp the gas valve when unsoldering the welding spot.) Remove the 2 screws fixing liquid valve. Unsolder the welding spot connecting liquid valve and remove the liquid valve.
2	Remove the 3 footing screws of the compressor and remove the compressor.





JF00301765

GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI

Add: West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070
Tel: (+86-756) 8522218 Fax: (+86-756) 8669426
E-mail: gree@gree.com.cn www.gree.com

For continuous improvement in the products, Gree reserves the right to modidy the product specification and appearance in this manual without notice and without incurring any obligations.